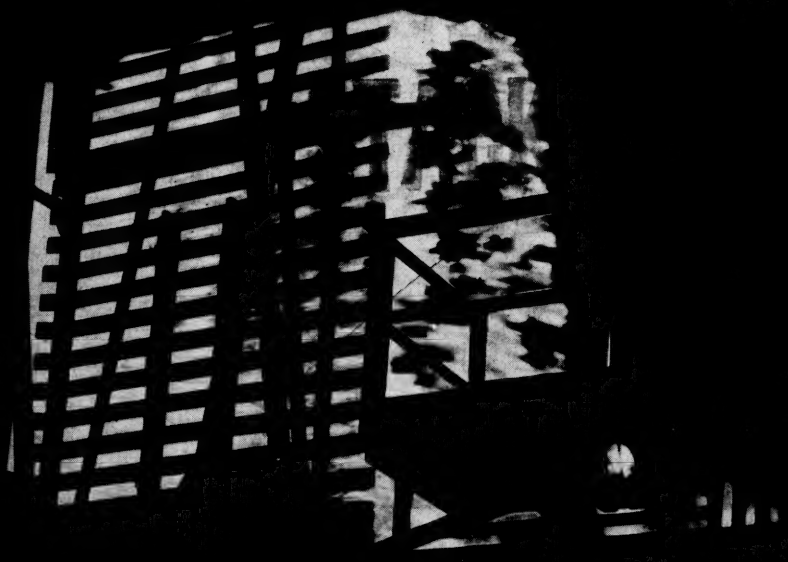
Manufacturers Record



The South in National Defense — *The illustration shows the first step in deriving chemicals from coal; incandescent coke being pushed from the ovens*

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New $30,000,000 Smokeless Powder plant for Alabama announced in this issue

JANUARY 1941

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Cover photograph of incandescent coke being forced from the ovens is by courtesy of E. I. duPont de Nemours & Company, Inc.

MANUFACTURERS RECORD

Devoted to the Upbuilding of the Nation Through the Development of the South and Southwest as the Nation's Greatest Material Asset

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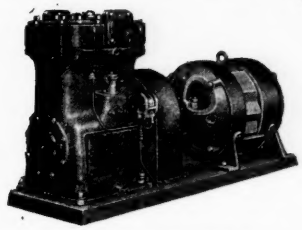

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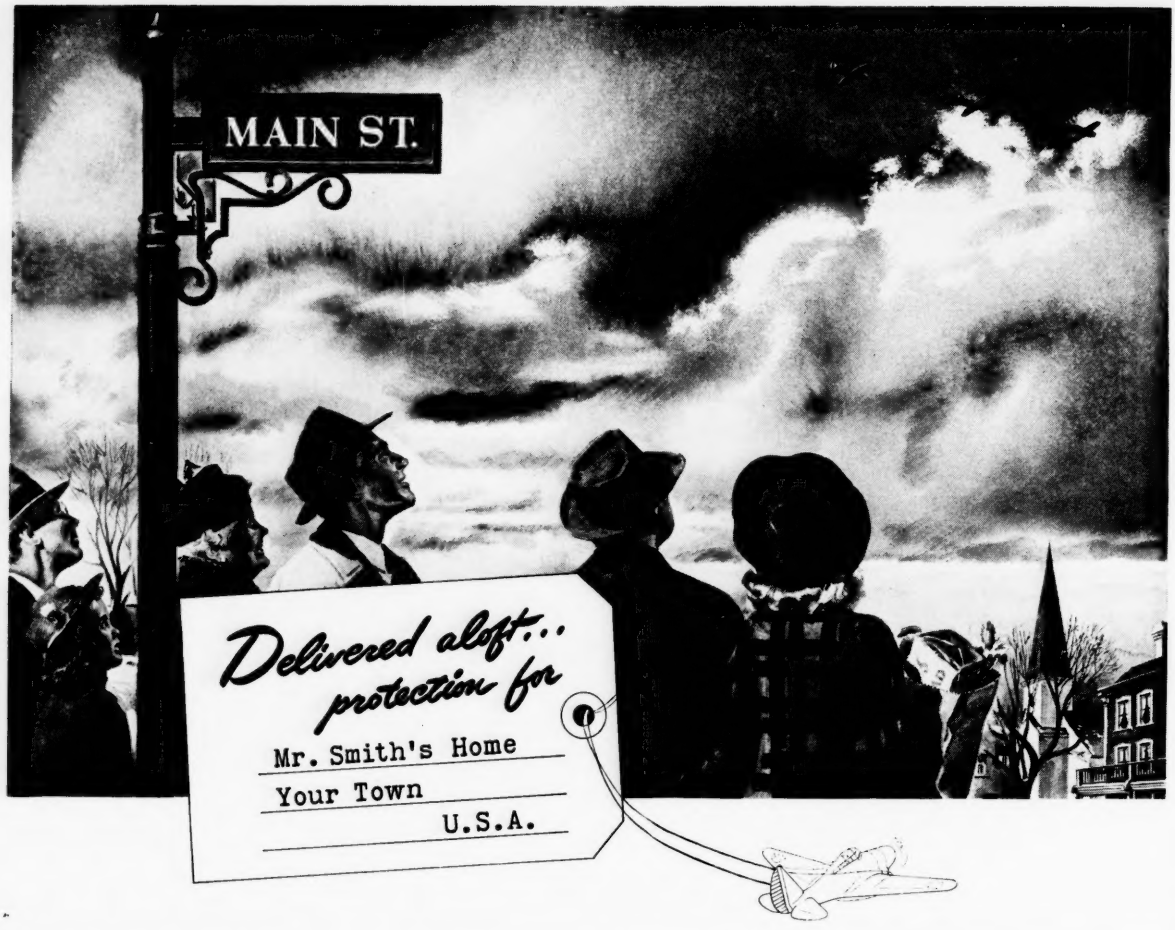

A *war* is loose in the world. Men and metals must be drafted to meet a dire emergency.

The biggest job aluminum has right now is to help defend America. For that job, this nation needs more aluminum than was ever used before.

To provide that amount of aluminum the industry must now more than double, in a matter of months, the production facilities it had built up through more than half a century.

Aluminum Company of America, as part of the industry, has undertaken to carry out now a program of expansion which in normal times would require two decades.

This company alone is investing over one hundred and fifty million dollars in new factories . . . new mills . . . new machinery . . . new dams . . . new power projects . . . new ships.

From the 1939 all-time annual peak production of 327,000,000 pounds, Aluminum Company of America expects to be producing at the rate of more than 700,000,000 pounds per year before the end of 1942.

But in the meantime, defense requirements come first. As an example, the railroads who use aluminum for streamlined trains may have to wait for the aluminum alloys which would be supplied promptly in normal times. The very qualities which make aluminum desirable for streamlined trains are among the factors which make it so valuable for the defense program . . . and which give defense a prior call on the metal immediately available.

If you find it difficult at the moment to get *all* the aluminum you want, *when* you want it, you will know that aluminum has gone off to defend your home and your country.

When we supply aluminum for National Defense in this crisis, your business and your family are served in an infinitely deeper sense than if the aluminum actually went to you.

And when the emergency is past, there will be more aluminum than was ever available before . . . lower prices . . . and more ways in which aluminum can serve industry and the nation.

COMING:

A Prevue of Aluminized America

When war is done . . . when peace is here . . . when people and markets are once more free . . . you will see such an upsurge in the use of aluminum as to make this in a very real sense an Aluminized America—lighter, brighter, and more efficient.

What will an Aluminized America mean to industry, agriculture, and the American home?

Some of the things it will mean are still locked in the minds of research men and development engineers. But some are very plainly indicated. In future advertisements in this space, we hope to show you some of the trends that may affect all of us. In one way or another, they will all grow out of

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Here are 12 of them:

Light Weight	Workability
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High Conductivity for Heat	

This, then is a prevue of a prevue

ALUMINUM COMPANY OF AMERICA

The Defense Of Liberty

Democracy as we have known it conceivably might be improved upon. The struggle of humanity however through the centuries since the beginning in its groping for freedom reached the pinnacle of its age old effort when the American Constitution was written. Anything that assails it and its immortal purpose as is done when democracy is attacked raises the danger sign to us. To lose what we fought for and have treasured for 150 years, and which perhaps we have accepted as a matter of course, at last appears in its true light as a prized possession. And if it should be so decreed, we must be prepared to fight for it again.

On the night of December 29, 1940, the President of the United States told the world of the determination of this country to quickly prepare its defenses and to aid Britain in every way to win the war.

They were solemn words that marked a fateful event, and they expressed the thoughts of a majority of Americans.

It is a tremendous thing for the people of a nation following the ways of peace to change over to armed preparedness against aggression. And yet that must be done.

The President's warning of the dangers that face us and the necessity for helping embattled Britain while getting ready our own defenses, met immediate popular approval. If we are to avoid attempts at our destruction in the future the course laid down is the necessary course to follow. We could, perhaps, postpone the evil day by craven attempts at appeasement. This has been done elsewhere with results known to all, but to destroy our ideals and our liberty and the individuality that has made this country what it is, would be worse than death. Don't let us make any mistake about it.

Lord Lothian told us we are not "backing a quitter," and the news from the little green island across the waters shows how men and women can die sooner than give up their sacred heritage of liberty. Their gallantry as we read the record makes us feel proud that we have inherited a part of their blood and a similar determination.

Civilization is threatened by ruthlessness unparalleled. Mechanized force forsaking laws of morality and religion has adopted the demoniac deceit that might makes right, and has set about the destruction of Democracy. Its idea is that the German system of militarism, with its slavery for other people, is best qualified to rule mankind everywhere. That is what is being attempted.

Speed then is the essence of the contract, and such speed as the world has never seen before. Fortunately, the productive capacity of America, with its unrivaled wealth of raw materials, its self-reliant,

inventive population will develop a productive enterprise that all the rest of the world combined will not be able to equal. We have the wealth and we have the spirit, and we believe under Providence we will be the means of giving such aid in the battle which save for British arms might be ours, as to bring defeat to those who would crush free men.

Without a complete change of purpose by Germany, peace terms are not likely to be considered by Great Britain. Wild beasts and raving lunatics that attack men are exterminated or confined, and those among us who counsel otherwise are mistaken in suggesting we apply now to the combatants for their conditions of peace. Such suggestions coming from the United States discourage England and encourage Germany to increase her preparations for new deviltry while at the same time slowing down our own defense efforts.

Longer Work Day Likely To Be Necessary

In discussing the question of longer working hours for labor as a way to speed up the defense program, The Twentieth Century Fund reports some interesting findings as the result of a special survey of labor policy. It is stated that the 40-hour week does not create any serious production problems so long as production can be increased by hiring additional workers, and "so long as additional workers are available the production problem is largely a cost problem." It is recognized, however, that "if serious shortages of qualified workers should develop during the next two years, a general lengthening of working hours probably will be called for."

Going further, the report states "expansion of the present defense program by as much as 50 per cent probably would create a critical situation."

The conclusion is reached that if there is ever need for a general lengthening of working hours the "real controversy will come over the issue of overtime payment. Should workers who are required to work more than 40 hours per week be paid time and a half for the extra hours as the Fair Labor Standards Act provides, or should a different policy be adopted?"

This country has undertaken a defense effort of great magnitude. Its completeness and effectiveness depend upon labor. There can be no question about that. It is likewise true that it is up to labor and employer alike to show that a democracy can prepare adequate defense against attack. We have only begun to express the intensity of the effort that will be required to build the armada of flying machines that England and the United States will need, the airports, the naval and cargo vessels, the training of an army that will possibly run into several millions, and the production of equipment, cannon and tanks and clothing and barracks present the picture of a business of vast effort in which speed and more speed is the requisite.

Under such conditions it is reasonable to expect not only that the talk about a thirty hour week will be deferred but that hours of labor well may be increased in the knowledge that an essential service requires it.

Private Industry And Defense

In this issue the MANUFACTURERS RECORD presents a number of articles which show the readiness of essential private industry to fill its part in the national defense program.

Information concerning conditions in agriculture and mining, our facilities for building ships; providing fuel for power on land and sea; capacity of the steel industry; the South's part in the production of the nation's minerals (and it is a most important part) are given in contributions that are interesting and important.

Dr. George C. Branner, in his article "Emergency Demand for Southern Minerals," says that "any estimate of the contribution the Southern states will be able to make in the mineral production of the country this year, must be based on the South's past production record. It is well to know, therefore, that the 16 Southern states produced minerals in 1938 that were worth $1,795,421,249, comprising 41 per cent of the total value of all the minerals produced in the United States during that year." This illuminating article presents facts about the mineral output of each of the Southern states, and takes up in detail the probabilities as to existing plants having to be enlarged or modernized.

American agriculture, we are told by Grover B. Hill, Assistant Secretary of Agriculture, is prepared. He says, "When the roll is called on national defense, the American farmer can answer 'ready'." Without minimizing the problems the farmer still has to face, he refers to the progress that has been made in efficiency, knowledge of the chemical components of the soil, the development of disease resisting plants, and the production of crops necessary in the manufacture of a wide variety of essential goods.

Victor H. Scales, Director of Public Relations

of the American Petroleum Institute, in his article, "The Petroleum South," lists the "factors which promise to give prominence to the petroleum South today and tomorrow, and place the highest importance upon the part that vast area will play in America's defense program." To show the extent of the preparedness in this industry, he points out that without waiting for tomorrow "in 1940 the petroleum South contributed largely to record demands for petroleum products. . . . The American petroleum industry not only is free from actual and potential bottlenecks, but is capable simultaneously of meeting military, government and civilian demands even in times of emergency."

One example will illustrate the encouraging news this article contains about the preparedness of the petroleum industry. "Plans for the Houston plant, the first ever built for the production of toluene from petroleum, were approved August 1, 1940. The plant was completed and in production before the end of the year. Annual capacity, which can be expanded whenever necessary, totals 2,000,000 gallons, enough toluene for 20,000,000 pounds of TNT. A second and larger plant is under construction at Baytown, Texas. It probably will be in operation well before the end of 1941."

Dr. Walter S. Tower, President of the American Iron and Steel Institute, in the article, "The Steel Industry in 1940," tells us that the production of steel in the United States reached during last year the highest level ever recorded; 66,500,000 net tons of steel ingots being produced, or "fully 8 per cent above the previous record figures of 61,400,000 in 1929."

Steel making capacity of the industry at the close of 1939 was rated at approximately 81,000,000 tons of ingots per year. In order to forestall bottlenecks in the production of steel for defense and other purposes various programs have been set in motion for substantially increasing productive capacity. These include certain major expansion plans for Southern plants.

H. Gerrish Smith, President of the National Council of American Shipbuilders, points out that the program in ship building "calls substantially for a duplication of our present navy. . . . Contracts for naval vessels, together with a large number of merchant vessels under construction or contemplated, have confronted the shipbuilding industry with the largest program ever before it in peace time."

With 330 combatant vessels to be built, together with a large number of auxiliary vessels, there is indeed a stupendous job. Some idea of its size, says Mr. Smith, "can be understood when it is realized that the program in private shipyards and government yards, together with the probable demand for ship repairs and reconditioning of both naval and commercial vessels, will require an average yearly employment of approximately 450,000 men for five years in shipbuilding and allied marine industries throughout the country."

Dr. Claudius T. Murchison, President of the Cotton Textile Institute, in his review of the cotton industry in 1940 refers to "a year of dramatically sharp contrasts, with domestic consumption reaching a new high, and exports of raw cotton slumping to the lowest figure since the Civil War."

The solution of the cotton problem, according to Dr. Murchison, "lies not in further acreage restrictions, parity loans, a market certificate plan, or a processing tax, but rather an increased domestic consumption." He calls attention to the progress made, a broadening of the home market for cotton goods and believes "it is not unreasonable to hope that in a few years we shall attain in this country an annual consumption of 10,000,000 bales."

Jesse V. Sullivan, Secretary of the West Virginia Coal Association, in one of his always interesting articles, gives us the story of coal in 1940, in which year production, according to early estimates at the close of the year, approximated 450,000,000 tons. The predictions of leaders in the industry that in 1941 the annual output will reach the half billion mark, are pointed to as an objective in coal production not attained since 1929. Heightened industrial activity to meet defense needs has already stimulated heavy buying for coming months. The ultimate effect of government fixing of prices cannot be determined, it is said, while national demand is upward. Therefore, some operators would like to see the Control Act extended beyond its expiration date of April 1, 1941.

Sales of mechanical coal stokers have surpassed all previous records according to Mr. Sullivan. In the last year factory sales reached 150,000 units, which was a 50 per cent increase over the year preceding. More intensive research into coal burning equipment is being followed.

After January 25, 1941, the offices of the Manufacturers Record Publishing Co., will be located in the Candler Building, Baltimore, Maryland, adjoining its printing plant.

XUM

AGRICULTURE AND DEFENSE

BY

Grover B. Hill

Assistant Secretary of Agriculture

AMERICAN agriculture is prepared. Never before in the history of the world has a nation been so bountifully supplied with food and fiber as the United States is today, and when the roll is called on national defense, the American farmer can answer, "Ready."

The Ever-Norman Granary has developed from an idea into a reality. The movement was timely. When we look at the world about us, when we hear the undercurrents of fear of famine in other lands, we realize that it is a blessing to have our granaries full. American agriculture has reached a degree of efficiency never before attained by this or any other nation.

The American farmer knows more about his soil, about the chemical components of the soil and what is needed in the production of various crops. Great progress has been made in the development of disease-resisting plants, as well as in methods of combatting insects that at one time took a very heavy toll and often laid waste entire farming sections.

And the American farmer is more keenly alive to possibilties, to his part in the make-up of our country, than ever before. He has worked for and obtained a better credit system, one more nearly adapted to his needs. Although distribution methods have not kept pace with production, the farmer has tackled that problem through the Stamp Plan and satisfactory progress is being made.

A vast amount of scientific research is constantly going on, both in the chemical and physical fields, in the most important of all phases of agriculture, the conservation of the soil. Wonderful progress had been made along these lines within the last few years.

In the chemical field, many useful products have been developed out of waste materials accruing from agricultural products. For example, over 130 different items are now being manufactured from the peanut. Methods are already known and in use for the manufacture of starch and alcohol and various other items from the sweet potato, and, should the need arise, alcohol for motor fuel could be produced in unlimited quantities from our various grains and other agricultural products. Many plastics are today being made from these products, and there is an unlimited future in this field.

American agriculture's ability to adjust production to consumption demands is evidenced by the fact that production has had to be adjusted to take care of about 35 million acres of farms that were once devoted to the production of feed for horses and mules.

The farmer once had an almost unlimited market for feedstuffs from cities where horses were used to do the work that trucks and automobiles are doing today. There is much being said about the tractor taking the place of horses, but the big change has come in the cities where, during the last 25 or 30 years, taxicabs and trucks and other motor vehicles have taken the place of millions of horses. This is progress, and no one should lament it. Nevertheless, it left a tremendous adjustment problem for agriculture, which it is meeting.

Of course, these problems cannot be solved overnight. It is not as easy for agriculture to adjust its production to consumption demands as it is for other industries, but there is an advantage not found in other industries. Idle acres can be planted to soil-building crops, and the soil can be built up while the lands rests, rather than suffering the depreciation that usually goes with an idle industrial plant.

We have made a great deal of progress in conserving the soil. Land is being terraced to save it from erosion. Fertilizer is being applied to grow crops that will strengthen the soil. A strong soil is the greatest guarantee of a strong nation because, wisely managed, it means a strong people.

The Department of Agriculture is keenly aware of the need for better nutrition and generally increased domestic consumption of the goods by which we measure "standard of living." The defense program should not lower but should coincide with efforts to better the living condition of most people.

Another adjustment agriculture faces has been brought about by the decrease in foreign markets. This, at least temporarily, is being partly cared for in the preparedness program. However, submarine warfare and blockades, together with the controlled economic policies of nations with which we once traded, will force the necessity for even more adjustment, because the increased domestic demand will hardly be sufficient to absorb the loss of foreign trade.

The preparedness program has given a temporary boom to the lumber industry and other related industries, such as turpentine and other products of that nature. The cutting off of the importation of pulpwood, a great deal of which originally came from the Scandinavian countries, has increased the demand for American pulp in the manufacture of paper. New discoveries have made it possible to use a great amount of American timber for pulp that was once practically useless.

There will be some expansion in the use of cotton for military needs. However, this is not as great as some people would expect, as the soldier uses very little more cotton in the army than he does at home.

In agriculture, the production of more than is needed for consumption, plus the Ever-Normal granary or normal supply, creates physical waste, because most agricultural products are perishable. Although the agricultural situation in America is not as rosy as we would like it, it is also not as dark as some would paint it.

The American farmer has devised ways and means to put a floor under his prices that will tend to keep price collapse at a minimum. He is better informed than ever before and is not likely to be led into ruinous over-production. He knows that it is better to keep the products in nature's storehouse, the soil, than it is to pile up vast amounts in warehouses, where they are not only expensive to keep, but wasteful and price-depressing as well.

There is absolutely no danger of a food shortage in this country, and when we consider that the real first line of defense consists of food and fiber for the people, the American farmer can take satisfaction and pride in the fact that he has done his job well. As one great arm of our national defense, agriculture is ready and well prepared.

THE STEEL INDUSTRY IN 1940

PRODUCTION of steel in the United States during 1940 reached the highest level ever recorded, reflecting in part the influences of the war in Europe and the national defense program.

More than 66,500,000 net tons of steel ingots were produced during the year, a total fully eight per cent above the previous record figure of 61,400,000 tons for 1929, and nearly 27 per cent greater than the 1939 output of 52,500,000 tons.

Steel mills of the South shared in the record-breaking activity during 1940, and although complete figures for the year are not yet available it appears likely that the tonnage of steel produced in southern states last year was above previous peaks.

Close to 18 per cent of the finished and semi-finished steel products produced for sale in 1940 was produced for the export trade, about half of which was destined for Great Britain. A small part of the tonnage consumed in this country was required for national defense, but by far the larger part of it went into regular channels of domestic demand.

Notwithstanding heavy exports and the wide variety of needs for steel in national defense, the total annual requirement of which is only a small fraction of the industry's capacity, there was plenty of steel to meet all needs in 1940.

In producing its record-breaking 1940 tonnage, the steel industry operated during the year at an average of 82 per cent of its capacity.

During the first quarter of the year, the demand for steel from all sources was equivalent to only 72.6 per cent of the industry's capacity to produce. Output in the second quarter represented an average of 72.7 per cent of capacity.

The third quarter of the year saw the industry operating above 90 per cent of capacity for part of the three months, and the average rate of operations for the entire quarter was 87.9 per cent.

In the final three months of the year, all existing records for the tonnage of steel production were broken as the industry maintained operations at an average close to 95 per cent of capacity.

Steelmaking capacity of the industry at the close of 1939 was rated at approximately 81,000,000 tons of ingots per year. That capacity was 15 per cent greater than could be produced with the equipment available at the close of 1929, and showed a gain of 38 per cent over the capacity at the end of 1918, compared with a population increase of 27 per cent over that period.

BY

Walter S. Tower,

President
American Iron and Steel Institute

During the past ten years (years for the most part of low rate of production and poor earnings in the steel industry) total expenditures for plant modernization and expansion approximated $1,500,000,000, a substantial part of which was spent in the South. That policy of improving and enlarging is going on constantly and in the past year it has added substantially to ingot capacity, lifting the total to an estimated rated capacity of 83,000,000 net tons.

Actually, that "rated" capacity is about 10 or 12 per cent below maximum theoretical capacity because of allowances which steelmakers consider necessary to make for periodic repairs or unavoidable shut-down of furnaces. That is why, under pressure of great demand, such as exists now, steel companies frequently report operations at a rate in excess of their "rated" capacity.

Thus although its "rated" capacity now is about 83,000,000 tons of ingots per year, the practical working capacity for the industry is approximately 85,000,000 tons.

In order to forestall any "bottleneck" in the production of steel for defense and other purposes, members of the steel industry this year have set in motion various programs for substantially increasing productive capacity. Included in these programs are certain major expansion plans for southern plants.

Hundreds of new coke ovens, some new blast furnaces, a number of new open-hearth furnaces, and more than a score of new electric furnaces are planned or are already in various stages of construction, while rolling mill capacity has been raised through the construction of new mills and modernization of others.

Nearly all of the new electric furnaces are already in operation or will be shortly after the first of the year. Construction of the other items of additional equipment is proceeding rapidly, and most of the new producing facilities are expected to be ready for operation some time next year.

It is estimated that the new electric furnaces will have an aggregate annual capacity of about 900,000 tons of steel, which will increase by nearly 50 per cent the industry's electric furnace capacity as of the close of 1939.

Approximately 1,300,000 tons of additional capacity for producing open-hearth steel will be added as a result of programs now under way, exclusive of the substantial additions to capacity which are expected to result from enlargement of older furnaces.

Employment and payrolls in the industry during 1940 rose far above 1929 levels. An average of approximately 550,000 men were employed throughout the year, or nearly 20 per cent more than in 1929, and payrolls of $950,000,000 were 13 per cent above 1929 in spite of the current shorter work week.

Hourly wages of steel workers in 1940 were nearly 30 per cent higher than in 1929, and stood at the highest level in history.

The high rate of steel operations in the last half of 1940 brought no indications of a shortage of labor, nor is there any threat of such shortage in the future.

Despite the high levels of steel production attained in the past year, prices for steel products have shown little change for the past year and a half, and today are at the lowest level in nearly three years.

The composite price of various kinds of finished steel products, as reported by trade papers, now stands at 2.26¢ per pound. That composite price is 40 per cent less than the average price for the two years 1917 and 1918, although hourly steel wages are nearly 65 per cent higher, and the quality of products is greatly improved.

XUM

EMERGENCY DEMAND FOR SOUTHERN MINERALS

BY

George C. Branner

State Geologist, Arkansas

ANY estimate of the contribution which the 16 Southern States will be able to make to the 1941 mineral production of the United States will necessarily have to be based on the South's past production record.

In 1938 the 16 Southern States[1] produced minerals worth $1,795,421,249[2]. These made up 41 per cent of the total value of the minerals produced in the United States during that year.

The value of 18 mineral items made up 97 per cent of the total value of all items produced in the South from 1927 to 1936, inclusive. These are shown in the table following:

Table 1. Value of minerals produced in 16 Southern States, 1927-1936, inclusive

Petroleum	$5,968,339,000
Coal	3,175,555,000
Natural gas	2,217,639,000
Clay products	480,260,979
Natural gasoline	463,806,000
Stone	338,212,646
Cement	258,383,709
Sulphur	247,151,005
Sand and gravel	204,966,291
Lead	171,345,240
Zinc	150,795,836
Phosphate rock	103,716,727
Iron ore	81,694,215
Lime	67,760,392
Gypsum	30,931,553
Salt	29,895,491
Asphalt	19,438,253
Bauxite	15,952,840
All others	469,779,618
	$14,500,947,382

These 18 items are also shown below, together with the percentage of the total United States values produced in the South, and the principal states from which the production of each is obtained.

Table 2. List of 18 principal minerals produced in the South, 1927-1936, inclusive.

Mineral	Per cent of U. S. production	Producing states[a]
Aluminum ore	100	ARK., Ala., Ga.
Asphalt	8	KY., Tex., Ala., Mo., Okla.
Cement	15	MO., TEX., Ala., Tenn., Ark., Ky., La., Md., Okla., Va., W. Va., Fla., Ga.
Coal	31	W. VA., Ky., Ala., Va., Tenn., Mo., Okla., Ark., Md., Tex., Ga., N. Car.
Gypsum	13	TEX., Okla., Va.
Iron ore	8	ALA., Mo., Tenn., Ga., Va., N. Car., Ark., Md.
Lead ore	39	MO., Okla., Va., Tex., Ky., Ark., Tenn.
Lime	28	MO., W. Va., ALA., Va., Tenn., Tex., Md., Ark., Fla., Ga., Ky., La., Okla., N. Car.
Natural gas	56	TEX., W. Va., Okla., La., Ky., Ark., Miss., Mo., Tenn.
Natural gasoline	50	TEX., OKLA., W. Va., La., Ark., Ky.
Petroleum	63	TEX., Okla., La., Ark., W. Va., Ky., Tenn., Mo., Miss.
Phosphate rock	98	FLA., Tenn., Ky., Va.
Salt	13	LA., Tex., W. Va., Okla.
Sand and gravel	23	TEX., MO., W. Va., MD., La., Tenn., Va., Ky., Ark., Okla., Miss., Ala., N. Car., Fla., S. Car., Ga.
Stone	24	MO., TENN., GA., Va., N. Car., W. Va., Ky., Tex., Fla., Ala., S. Car., Md., Okla., Ark., La., Miss.
Sulphur	77	TEX., La.
Zinc ore	34	O K L A., M o., Tenn., Va., Ky., Ark.
Clay products	21	W. Va., MO., Ky., Tex., Md., Ga., Tenn., Ala., N. Car., Va., Ark., S. Car., Okla., Miss., La., Fla.

[1] Maryland, West Virginia, Virginia, Kentucky, Tennessee, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Arkansas, Missouri, Oklahoma and Texas.

[2] U. S. Bureau of Mines figures used for mineral value figures.

[a] Given in order of descending value except where listed alphabetically. States printed in capital letters produced over 50 per cent of the South's production.

It is significant that, during the 10-year period from 1927 to 1936, inclusive, fuel minerals made up 81 per cent, nonmetallics 13 per cent, metallics 3 per cent, and undistributed 3 per cent of the total value of minerals produced in the 16 Southern States.

It thus may be stated without much hesitation that the greatest contribution the South will make to the emergency effort will be its contribution of fuel minerals, namely petroleum, coal, natural gas, and natural gasoline. The nonmetallics used in construction will probably be next in dollar value. These include stone, sand and gravel, cement, lime, and gypsum. The contribution of metals will doubtless be small in terms of relative dollar value, although important from a military standpoint. These include principally lead, zinc, iron, bauxite, and mercury.

Data received from state geologists of 9 Southern States are interesting in connection with problems relating to the 1941 situation as now anticipated. The state geologists supplying data are George C. Branner, Arkansas; Garland Peyton, Georgia; J. Hunter, Jr., Louisiana; Edward B. Mathews, Maryland; H. A. Buehler, Missouri; Robert H. Dott, Oklahoma; Stephen Taber, South Carolina; Arthur Bevan, Virginia; and Paul H. Price, West Virginia.

The first question asked was "What do you anticipate will be the demand in 1941 for mineral products in your state?"

Arkansas. Since the estimated value of mineral production during the calendar year 1939 averaged approximately 15 per cent higher than that of 1930, it is assumed that the trend established will continue during the period of the present emergency. Increased demand is expected to develop particularly for petroleum, natural gas, natural gasoline, and coal; the structural materials, lime, limestone, cement, and clay products; and the metallics, bauxite, mercury, and manganese.

Georgia. Increased demand is expected for clay, asbestos, mica, manganese, bauxite, and chromite.

Louisiana. Increased demand is expected for petroleum, especially those crudes which contain especial hydrocarbon fractions such as toluene, etc.

Maryland. No important emergency is expected to develop during 1941.

Oklahoma. There may be some increase in the demand for coal, cement, granite, phosphate, zinc, lead, iron, and manganese.

South Carolina. It is anticipated that the 1941 demand will approximate that of 1940.

Virginia. Increased demand is expected for coal, gypsum, limestone, lime, soapstone, salt brine, manganese, pyrrhotite, titanium minerals, and zinc.

The second question was "In order to meet the total 1941 demand, will new deposits have to be opened up?"

Arkansas. Some new oil and gas fields for which structural maps now exist will probably be brought into production. It

is anticipated that new and perhaps deeper deposits of bauxite will be exploited, old manganese and zinc workings will probably be opened up, and new mercury mines will be opened up.

Georgia. New deposits opened up are expected to include mica, bauxite, manganese, and chromite.

Louisiana. Normal increases in petroleum reserves are expected to be sufficient to meet increased demand.

Maryland. It is not expected that important new deposits will be opened up.

Missouri. It is not expected that important new deposits will be opened up.

Oklahoma. Some new oil wells will be drilled to meet requirements. New and small iron and manganese mines will be opened.

South Carolina. Few if any new deposits will be opened up.

Virginia. New mines opened will probably be chiefly manganese.

West Virginia. New coal operations will probably be started. New natural gas wells will be drilled as part of a continuing program of development.

The third question was "In order to meet the total 1941 demand, will existing plants have to be enlarged or modernized?"

Arkansas. Power generating machinery may be installed which will utilize recently discovered gas reserves in southern Arkansas. These reserves are estimated in excess of 300 billion cubic feet and can be used to generate electrical power at an exceptionally low unit cost. An electrolytic manganese plant may be constructed in northern Arkansas. Two or more new quick-silver furnaces will probably be installed. It is probable that a few plants for milling zinc will be constructed in northern Arkansas.

Georgia. Increased plants are needed for mining manganese, mica, asbestos, and chromite.

Louisiana. So far as petroleum production is concerned, it is a matter of refining capacity.

Maryland. No increase in mining establishments is anticipated.

Missouri. No new construction anticipated in the lead and zinc district. No increased capacity needed by refractory industries.

Oklahoma. No new construction anticipated.

North Carolina. No important construction anticipated.

Virginia. Probably some small construction will be required.

West Virginia. Coal facilities are capable of meeting increased demand.

The fourth question was "In case plant expansion will be necessary, do you believe that such expansion can be made relatively permanent or will some additions be closed down upon the termination of the emergency? Have you any suggestions as to how eventual shutdowns can be minimized in your state?"

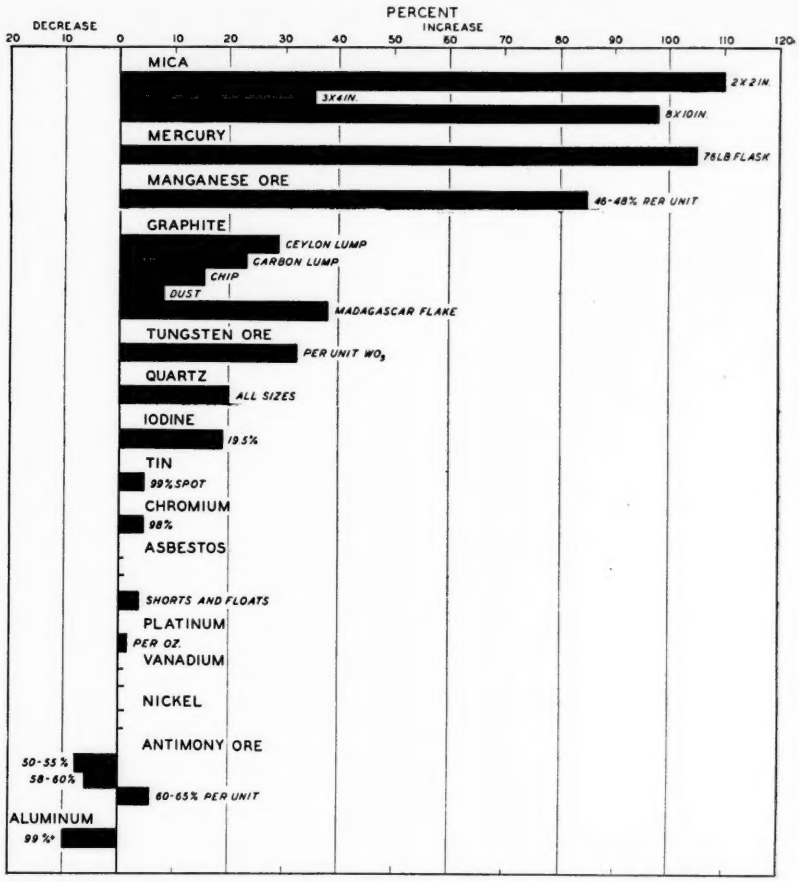


Chart showing change in price of strategic and critical minerals from May 11, 1939 to September 12, 1940

Arkansas. Gas burning power installations would probably be permanent. Bauxite mining equipment would probably be permanent. At least part of the zinc, manganese, and mercury installations would probably be permanent.

Georgia. It is believed that most of the expansion requiring new installations would be permanent.

Oklahoma. New construction will probably be permanent.

Virginia. New construction will have to be abandoned unless ways and means can be found to continue operations after the emergency.

It is also of interest to note strategic and critical mineral production of the South as compared with that of the United States. This is shown in the following table, together with the percentage of the United States production.

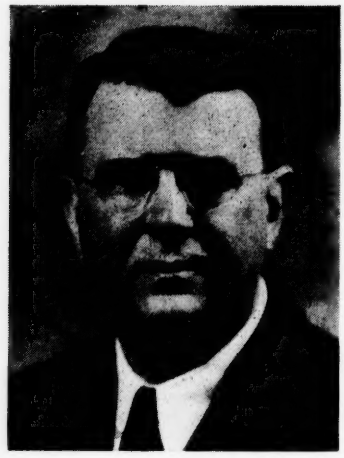
TABLE 3. Per cent of production of strategic and critical minerals in principal Southern producing states, 1927-1936, inclusive

Mineral	Per cent of total U. S. production obtained from Southern States 1927-1936	Principal producing Southern State	Per cent of Southern production
STRATEGIC			
Mica	62.7	N. Carolina	99
Manganese	33.6	Georgia 42 Arkansas 38 Virginia 21	91
Tungsten	6.1	Missouri	100
Mercury	.5	Arkansas	100 est.
Chromium (chromite)	.2	Maryland	100
Quartz crystals	No record	Arkansas	No record
CRITICAL			
Aluminum (bauxite)	100.0	Arkansas	95
Graphite	100.0	Alabama	100
Asbestos	2.7	Georgia	100
Iodine	No record	Louisiana	No record

(*Continued on page* 58)

XUM

PROGRESS IN COAL



BY

Jesse V. Sullivan

Secretary, West Virginia Coal Association

NATIONAL bituminous coal production in 1940 approximated, according to early estimates at the close of the year, 450,000,000 tons. Leaders in the industry predict that in 1941 the annual output will reach the half-billion mark, an objective in coal production that has not been attained since 1929. Final figures will show the 1940 tonnage greater than any year since 1930 when 467,000,000 tons were mined.

During the closing weeks of 1940 the national weekly production threatened several times to reach 10,000,000 tons, which would produce an annual output in excess of 500,000,000 tons. This weekly production represents 85% of present mine capacity and is computed on the 35-hour week basis, maintained in the bituminous coal industry since 1933 when adopted under NRA regulations.

Based on the 1940 performance in the industry it is a reasonable assumption that a 10% increase in production in 1941, as forecast by James D. Francis, President of the Island Creek Coal Company, can be attained without any severe strain on mine capacity and without severely taxing the capacity of the carriers to move the tonnage to consuming markets. It requires a continued weekly output of twelve million tons to clog for any length of time the facilities for transportation.

Heightened industrial activity to meet national defense needs, reflected clearly in the output of the iron and steel industry, is not only responsible for the increased production of coal in 1940, but it has also stimulated heavy buying for 1941.

Mr. Francis believes the railroads and other large consumers, in contemplation of eventualities that might interrupt a steady flow of coal into consuming markets, will forestall any such impediment by heavy purchasing early in the New Year. He recites that he has been unofficially advised that one of the larger railroads planned to store 1,000,000 tons of coal during the first quarter of the year.

The year 1940 saw the initiation of the government's first successful attempt to establish price-fixing on the sale of bituminous coal. Government prices became effective on October 1 and was followed by a sharp decline in production which continued for six weeks. The recession, which probably dissipated some stocks, was followed by a spurt in output which brought the weekly total before the end of the year to figures approximating those before fixed prices became effective.

Ultimate effect of government prices on the industry cannot be determined while the national demand is upward. Encroachments of substitutes cannot be accurately reflected when the demand for this primary source of power reaches near to the point of productive mine capacity. Price control was aimed to cure chaotic conditions that are naturally removed by a rising market.

Government control of minimum prices expires automatically on April 1, 1941, unless the legislation is extended. Many operators contend that the time allotted for operation of the act is not sufficient to permit a thorough test of the efficacy of the legislation. They will seek extension of the legislation.

Some of the Southern coal operators, who are not wholly displeased with the control act, have indicated fears that it may in the end prove more beneficial to northern producing districts. The Southern States Industrial Council in a study of the act charged that coal prices in the southern districts had been increased $18,000,000 to absorb the same amount sustained in losses in two Pennsylvania districts. With the mines in all eastern districts operating close to productive capacity any present tendency of the act to dislocate production will not be easily observed.

Wage contracts between miners and operators in the bituminous fields expire on April 1 at the time of the termination of the coal act. Optimism prevails in the coal districts that there will be no extended wage controversy this year over a renewal of the wage agreement which marked the negotiations in 1939 when the mines were suspended for six weeks. Impairment of defense activities will be frowned upon this year by the government, is the general belief prevailing in the industry.

The National Coal Association recites at the close of 1940 that the installed capacity of fuel-burning electric plants was increased approximately one million kilowatts during the year, an increase more than three times greater than the increase in hydro-electric generating capacity. Fuel power in 1940 represented 66.4% and water power 33.6% of the total electric power generated.

Southern operators were the largest beneficiaries of an export trade in 1940 which increased more than 50% over the 1939 export trade. This increase went largely to Canada and South American nations and many of those who have been participating in these new markets are hopeful that the increase of exports to Latin America will be of a permanent value, due to improved relationships with our Southern neighbors.

Efforts of the coal industry to compete with fuel oil and natural gas in providing automatic heat to the consumer became more realistic in 1940 when sales of mechanical coal stokers surpassed all previous records. Factory sales of these units reached 150,000, an increase of 50% over the preceding year. Stoker improvements are continuing and more intensive research into coal-burning equipment has augmented the sales of stokers and increased the use of stoker coal.

Probability of the development of the St. Lawrence seaway project for hydro-electric purposes, under the guise of national defense necessity, is a disturbing thought for coal in 1941. Such development, without congressional assent, would invade a large coal market and displace a large tonnage of coal, together with thousands of miners now employed. Several years ago the United States Senate rejected this treaty, but the program may now be made effective without senatorial approval.

West Virginia retained her rank as the largest producer of bituminous coal in 1940, mining about 126,000,000 tons, or 28% of the national output, employing 108,000 men in the industry and paying wages in excess of $150,000,000. The pro-

(Continued on page 44)

SHIPBUILDING FACES RECORD PEACE TIME PROGRAM

BY

H. Gerrish Smith

President
National Council of American Shipbuilders

DEVELOPMENTS abroad in 1940 brought about legislation in this country which calls substantially for a duplication of our present Navy with the result that contracts for naval vessels, together with the large number of merchant vessels under construction, or contemplated, has confronted the shipbuilding and allied marine industries with the largest program ever before it in peace time, and comparable in volume to the World War shipbuilding program, but fortunately spread over a somewhat longer period of time than the war program.

The present naval building program calls for not less than 330 combatant vessels, together with a large number of auxiliary vessels, some seagoing and others for coastal, harbor and inland waterway defense, contracts for nearly all of which have been placed and which call for completion of the entire program within five years.

Seventy-nine of the above combatant vessels, including 14 battleships are to be built in government navy yards. This work involves the same classes of employees as the private shipyards.

Some idea as to the size of this program can be understood when it is realized that the naval program in private shipyards and in Government Navy Yards, together with the commercial program and the probable demand upon the ship-repairing industry for the repair and reconditioning of both naval and commercial vessels requires an average yearly employment of approximately 450,000 men for a period of five years, about one-half in the shipbuilding and ship-repairing yards and the remainder in the allied marine industries well distributed throughout the country.

The program of the Maritime Commission to December 13th provides for the buiding of 179 ships of which 83 have been launched and 56 delivered. Bids will be opened in the near future for the construction of numerous additional vessels. Included in those vessels that have been delivered is the "America," the largest commercial vessel ever constructed in the United States. This vessel was built at the works of the Newport News Shipbuilding and Dry Dock Company and entered service from New York in the West Indies tourist trade in August. This vessel is 723' long, 93' 3" beam, 32' draft and of 24,454 gross tons, and is designed for a maintained sea speed of 22 knots, which can be exceeded easily.

The "America" is one of the safest vessels ever built. It is so subdivided that three adjacent compartments can be flooded without sinking the vessel below its margin line of safety, and the interior construction throughout all public spaces and living quarters is of fire-resisting material, the use of wood being almost wholly eliminated. The fire-resisting construction has been worked out so as to present a pleasing appearance in all staterooms and in public spaces, and it practically eliminates the danger of fire aboard ship.

Of the vessels in the Maritime Commission's program, the Navy has already taken over 23 of them, of which 12 are high-speed tankers, and others of various types for use as naval auxiliaries.

Some of the vessels of the Maritime Commission's designs, that is, the C-2, C-3 and the last group, the C-1 are now in operation and are giving good service. These vessels are of much higher speed than the older vessels in the merchant fleet and form an excellent nucleus of up-to-date vessels for our merchant marine while at the same time not less than 122 old seagoing vessels, each of 1,000 gross tons and over, and some 80 more smaller ones have been sold to foreign countries since the outbreak of the European war.

At this time a year ago the volume of shipbuilding in sight in the private shipyards could have been handled by the existing shipbuilding facilities, or by small additions thereto, but the enormous naval program has required extensive additional facilities in existing yards and has brought into being several new yards so that at the present time there are 31 shipyards in the United States building or preparing to build vessels of seagoing types, 17 of which are building or are to build naval vessels.

The program ahead likewise calls for additional facilities in many of the allied marine industries. It places a heavy responsibility not only on the shipbuilder and these allied industries but on labor as well to devote their energies intensively to this national defense program in order that it may be carried out effectively in the shortest possible time.

South of the Mason and Dixon Line, the Newport News Shipbuilding and Dry Dock Company has a substantial part of the new naval program to build, while two yards on the Gulf Coast are to build destroyers, and in addition, practically all of the ship-repair yards are engaged from time to time in the repairing of naval craft.

The present detailed distribution of commercial building contracts along the coastal waters of the United States is as follows:

COMMERCIAL VESSELS OF 1,000 GROSS TONS AND OVER UNDER CONSTRUCTION AS OF DECEMBER 18, 1940*

Below Mason and Dixon Line

Yard	*Class of Vessel*	*Gross Tons*
Bethlehem Steel Co. (Sparrows Point)	11 Cargo	83,000
	3 Pass-Cargo	24,900
	14 Tankers	127,500
Charleston Shipbuilding & Dry Dock Co.	1 Tanker	1,560
Newport News Shpibuilding & Dry Dock Co.	6 Pass-Cargo	55,200
	3 Cargo	25,200
Welding Shipyards	2 Tankers	18,900
Total:	40	336,260

(Continued on page 58)

XUM

SOUTHERN CONSTRUCTION REACHES NEW HIGH IN 1940

BY

Sam A. Lauver

News Editor, Manufacturers Record

SPURRED on by the feverish haste accompanying the greatest peacetime armament program this country has ever experienced, Southern construction during 1940 hit the peak point of its history with a $1,534,350,000 total of contracts awarded.

Industrial construction more than doubled during the year. The tremendous increase of activity in this field of construction is tersely described by the fact that the 1940 total was $412,743,000; the 1939 total, $162,874,000. Government factories, or their equivalent in plants financed by Federal funds; vast expansions in facilities in aircraft manufacturing, steel production, oil refining and power generation—all were heavily responsible for the rise over the preceding twelve months.

With numerous expanding or newly established military camps and many Government factories being built under the defense program, the South bids well to make still further industrial construction gains during 1941, especially in face of the need for additional facilities to turn out war materials not readily adaptable to peacetime industrial operations.

More than two billion dollars of Federal funds are earmarked for construction purposes during 1941. Congressional action may substantially augment this fund, one fourth of which is indexed for additional facilities for turning out army and navy supplies, both directly by those arms of the service and by private industrial concerns.

Other percentages of the two billion will go for draftee training centers, for housing enlisted men and defense workers, for additional air bases and for extending the military and naval defense establishments from Newfoundland to the Caribbean and across the continent from Alaska far into the Pacific. Shelter for draftees will involve the largest slice, or about $631,000,000; housing for enlisted personnel and defense works, $240,000,000; air bases, $337,000,000; military and naval establishments, $258,000,000.

Work relief projects, which last year declined more than two hundred million dollars, should drop drastically. Hundreds of thousands of workers have been reemployed, or are being groomed to take places in the booming industries.

A further rise in home construction is forecast, especially in the speculative field. It is reported by the United States Savings and Loan League that conditions have changed to such an extent that only fifty percent of the homes being erected today are built to order of the owner, the balance being constructed speculatively by builders of from one to three hundred houses a year. Estimates place the number of new houses to be built this year in the neighborhood of 650,000.

It is reasonable to predict that large numbers of these will be erected in the South, where the need is tremendous, especially at the giant munitions plants being established, such as the $28,000,000 ammunition loading factory announced in December for a site in Tennessee between Milan and Jackson.

What is in prospect for the South in the housing field can be seen from the totals for housing authority and private residential construction initiated during the past twelve months. Housing authority projects totaled $111,400,000, as compared with the $77,986,000 in the comparable period of the previous year. Private residential construction, in the field of higher price ranges, advanced approximately six percent to $98,707,000.

A review of Southern industrial construction events of the last twelve months, may indicate better than any outright prediction just what this new year has in store for the 45,184,060 people of the sixteen Southern states, with a resultant effect upon the country as a whole.

Statistically, January with a $9,765,000 total represented a substantial increase over the month immediately preceding, at the same time being far below the monthly average for the last quarter of 1939. In February, Southern industrial construction had doubled, the total was $19,546,000. March saw the peak of the first quarter, or $23,767,000 in industrial contracts. In April, May and June, with totals $8,723,000, $4,968,000 and $8,602,000, respectively, newly initiated industrial expansion in the South lagged through the low point of the year.

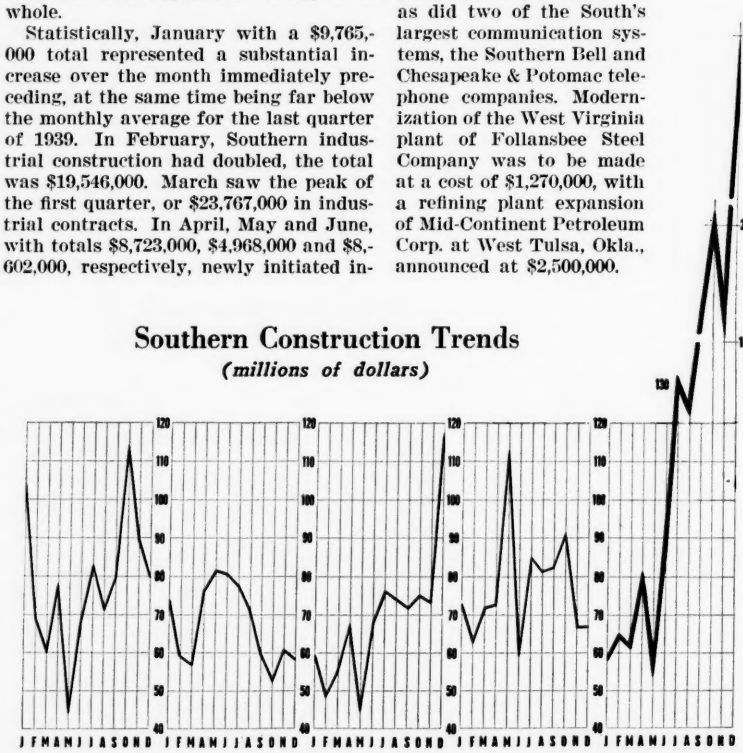
The picture changed during the entire latter half of 1940—France had fallen; Great Britain was being sorely pressed. Industrial construction, not only in the South but throughout other sections of the country, asumed the pace of the forced march. Federally financed in many instances, hurrying industrialists rushed new and expanding projects valued at $21,903,000 in July.

The August figure was practically double that of the previous month; a further increase to $57,933,000 in September, and a lofty $89,321,000 in November. The year ended with December's $69,030,000, the second highest total for the twelve months.

January was the month of announcements of power and railway activity. Potomac Electric & Power Company, Washington, D. C., stated its construction budget of $7,230,944, exclusive of 1939 commitments of $5,500,000. Consolidated Gas, Electric Light & Power Company, Baltimore, inaugurated a $7,261,312 program, with a $2,745,729 carryover. Other power companies in Oklahoma, Arkansas, Kentucky and Texas embarked on important programs. Railroads, such as the Norfolk and Western, Missouri Pacific and St. Louis and San Francisco, made public plans for the year, as did two of the South's largest communication systems, the Southern Bell and Chesapeake & Potomac telephone companies. Modernization of the West Virginia plant of Follansbee Steel Company was to be made at a cost of $1,270,000, with a refining plant expansion of Mid-Continent Petroleum Corp. at West Tulsa, Okla., announced at $2,500,000.

Southern Construction Trends

(millions of dollars)



Power company expansion continued in the reports of February. Louisville Gas & Electric Company scheduled work to start on a $2,300,000 plant in addition to a previously announced $2,015,000 budget. Virginia Public Service Company, Alexandria, allotted $2,000,000 for a new generating station. Maryland's Eastern Shore Public Service Company slated $1,000,000 for a plant extension at Vienna. Almost a third of the $3,676,000 program of the Virginia Electric & Power Company was to go for enlarging its Twelfth Street plant and for a new hydroelectric station.

Union Electric Company, St. Louis, Missouri, obtained a permit to make plant alterations at a cost of $1,600,000. February also saw announcements of such plants as the $2,000,000 building material plant at Meridian, Miss., for Flintkote, Inc.; the $1,000,000 Dallas, Texas, soap plant of Procter & Gamble Company; a $1,000,000 paper mill enlargement at Bogalusa, Louisiana, for Gaylord Container Corp.

Ace of the March activity was an award for a $5,000,000 plant at Freeport, Texas, to extract magnesium from the waters of the Gulf of Mexico. A Dow Chemical Company project, this was the second similar operation of that organization. A Dow affiliate already was operating a plant at Kure Beach, near Wilmington, N. C., where bromine is taken from the Atlantic Ocean. DuPont was active in locating two Tennessee powder plants.

Republic Steel Corporation announced its program involving millions of dollars for increasing capacity of its Gadsden, Alabama, mill. Two aircraft factories were proposed in Texas. A $1,000,000 solvent dewaxing unit at Houston was placed under contract by Sinclair Refining Company, as were the new $1,000,000 Baltimore building of Chesapeake & Potomac Telephone Company and the foundation for the Alexandria power plant.

Plans had been developed by the National Power Policy Committee for a proposed 2,500-mile network of transmission lines to connect strategic munitions manufacturing centers east of the Mississippi River. Baltimore, Washington and St. Louis were among the cities named. Duke Power Company at the same time was carrying forward construction on two expansions costing $18,000,000. Georgia Power Company, at Macon, and Alabama Power Company, at Mobile, proceeded on projects each involving around $4,000,000. Florida Power & Light Company's $3,000,000 Dania project was another.

Expenditure of $7,000,000 for expanding the Amcelle, Maryland, and Celco, Virginia, plants of Celanese Corporation of America, rivaled April reports of a proposal to double the capacity of the South's only newsprint mill at Lufkin, Texas, involving an expenditure of $6,000,000 by Southland Mills, Inc. Southern Natural Gas Company, Birmingham, Alabama, was to expend $3,000,000 for expanding its system. An addition to the Corpus Christi, Texas, plant of Southern Alkali Corporation was reported at $1,000,000, with Tennessee Coal, Iron and Railroad Company, Birmingham, installing equipment to require 300 additional employes. The 1940 construction program of Chesapeake & Potomac Telephone Company, Richmond, Virginia, was placed at $1,350,000. Cost of expansions in Maryland for Frankfort Distilleries, Inc., was to be $1,800,000.

Prospects of greater Southern industrial expansion were rumored in May, when the likelihood of substantial increases in aircraft manufacture became apparent. At the same time a large plant was being finished at Nashville; Celanese Corporation selected the contractor for buildings at its Narrows, Virginia, plant. Shell and Standard Oil interests worked on plans for a $20,000,000 pipeline to connect Louisiana and the Carolinas; Florida Pulp and Paper Company made preparations to start constructing its $2,000,000 mill at Pensacola, and Continental Oil Company was ready to begin a $4,000,000 refinery at Ponca City, Oklahoma.

Featured in June reports were the two hydroelectric plants—one on the Tuckaseegee River and the other on the Nantahala in North Carolina—projected by the Nantahala Power & Light Company, Aluminum Company of America subsidiary, at a reputed cost of $15,000,000. Rising ship repairs at Baltimore forced Bethlehem Steel Company to start additions to its upper harbor yards, as Rustless Iron & Steel Company in the same city let contracts under a $6,000,000 program.

June industrial projects in Texas, where the Navy Department let contract for a $23,000,000 naval air base at Corpus Christi, included a $2,000,000 proposal to quadruple capacity of the Fort Worth refinery of Magnolia Petroleum Company, and a $2,800,000 expenditure to supplement a $3,500,000 program then nearing finish for Panhandle Eastern Pipe Line Company.

National defense construction at Washington, Norfolk, Jacksonville, Miami and Pensacola stood out in July construction trends. H. L. Hunt, of Shreveport, Louisiana, was reported planning a $2,000,000 recycling plant in Webster Parish; Glenn L. Martin, Baltimore airplane manufacturer added to his already hugh plant, and Solvay Process Company took initial steps toward erecting a fully equipped power station at its Baton Rouge, Louisiana, chemical plant. Rolling stock contracts were announced in July by various railroads, among which were Norfolk & Western, Illinois Central, Baltimore & Ohio, Mobile & Ohio, Chesapeake & Ohio, as were construction projects for Texas & Pacific, Seaboard Air Line and Richmond, Fredericksburg & Potomac.

A $25,000,000 powder plant to be built by Hercules Powder Company on a War Department site near Radford, Virginia, topped the August list and became the third gigantic explosives factory announced for the South and continguous territory. The first was the British financed plant at Millington, Tennessee, and the second a plant similar to that at

(*Continued on page 66*)

EFFICIENCY AT DOORWAYS

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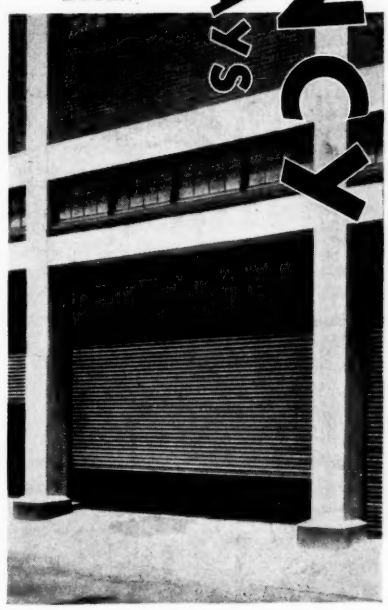

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XUM

SOUTHERN PINE MAKES GOOD ON PLEDGE TO AID DEFENSE

BY

H. C. Berckes,

Secretary-Manager, Southern Pine Association

THE Southern lumber industry is meeting the extraordinary demands of the government for vast quantities of lumber, and in addition is supplying the normal requirements of private builders.

In an article published one year ago in the MANUFACTURERS RECORD, the writer asserted that:

"Whatever may develop from the war in Europe, with respect to the effect upon the industries of the United States, the Southern lumber industry will be found prepared to fulfill whatever demands may be made upon it, and to meet any emergency that may arise."

Today we are glad to claim fulfillment of that year-old prediction. Our industry has been called upon for service by Uncle Sam and it has not been found lacking.

Government officials consider that comfortable, sanitary housing for the country's greatly augmented military forces is of vital importance in the National Defense Program, and the South's lumber manufacturers were quick to recognize that they have a large share of the responsibility in the great task of providing the proper housing necessary to the health and efficiency of the nation's defenders.

The industry realized that for tent-houses, barracks, mess halls, warehouses, hospitals, dwellings and other buildings needed to furnish shelter and other service for the men and officers in Uncle Sam's army of defense, several billion feet of lumber would be required over a relatively short period of time. And these billions of feet of lumber must be supplied in record-breaking time, and it must conform to a standard of quality that will provide comfortable living quarters and satisfactory service.

The majority of the Army cantonments thus far authorized are located in Southern pine consuming territory and naturally the major proportion of the lumber used in these projects will be Southern pine. Because the complete Army and Navy programs are not yet known, accurate estimates of total lumber requirements are not feasible at present.

Edward R. Stettinius, Jr., member of the Natioanl Defense Advisory Commission in charge of industrial materials, recently stated that for cantonments thus far authorized in the defense program, approximately one and one-half billion feet of lumber would be required, and that most of this huge quantity already has been purchased. For the defense housing program, the defense commission estimated that an additional one billion feet of lumber will be required during 1941.

Indications at the time this article is being written, are that between 800 million and one billion feet of Southern pine will have been ordered by the government by January 1, 1941. Approximately 600 million feet of Southern pine had been purchased up to November 1, last.

Existing facilities in the Southern pine industry are considered entirely adequate to furnish the lumber that will be required by the government, and in addition there will be an abundant supply for retail dealers' stocks and for private construction, which now appears likely to assume increased proportions during the coming year. Many sawmill plants have been modernized and improved in recent years; new machinery has been installed, and improved methods and processes in manufacture and handling of lumber have been adopted by the sawmills.

No "bottle-necks" in production or delivery of Southern pine have developed thus far, and with the facilities and technique available, it is confidently predicted that none is likely to occur in the industry.

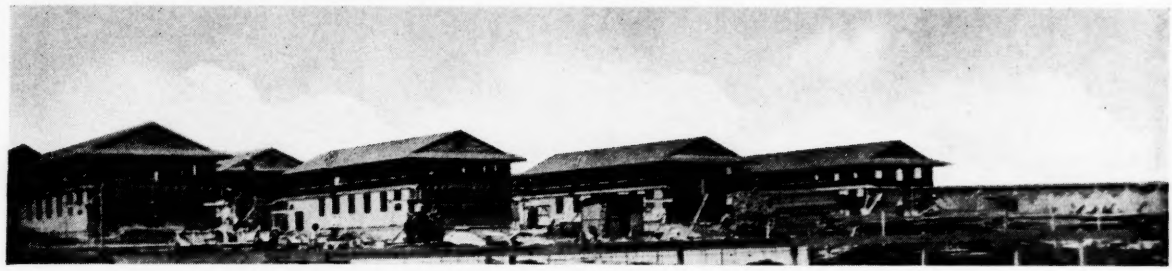
The National Defense Advisory Commission's recent announcement stated that a survey shows that lumber production in this country for 1940 will exceed the 1939 output by about three and one-half billion feet, and that the increased production has been particularly noticeable in the South. The Commission's announcement also stated:

"Despite the large sudden demand placed on the sawmills by government orders for lumber required in the construction of cantonments, mills have been able to meet delivery schedules without causing a delay in construction work."

Preparations for meeting just such an emergency as now exists, were begun by the Southern Pine Association, in behalf of the entire industry, at the outbreak of the war in Europe. The Association at that time anticipating the effects likely to be caused upon the United States, started its preparedness work.

It is estimated that in the principal producing states there are between 7000 and 8000 sawmills manufacturing Southern pine, several thousand of which are in regular operation. Before the defense program was developed and

Mess hall and tent-frames at Camp McClellan, Anniston, Ala. Pre-cut Southern pine is used in these structures.



Barracks in course of construction with Southern pine at Dodd Field, San Antonio, Texas.

prior to award of any defense construction contracts by the government, the SPA began collecting and compiling information and data concerning location of sawmills, character of timber supply, stocks of lumber and items on hand at the mills, the mills' production capacity, their equipment, facilities and possibilities for expansion of production in case of need.

This information was made available to government construction agencies and in addition the Association's engineers and field men contacted the government construction officials and purchasing agents, both in Washington and at army posts and naval stations, to assist them with technical information respecting uses of the different grades and sizes of Southern pine, for various purposes, the physical properties and qualities of the wood, and to help government officials in preparing specifications for lumber construction, so as to assure efficient and economical service. Later, as the different projects were authorized and contracts awarded, similar service was given by the SPA to government contractors, and in addition the government purchasing agents and contractors were assisted in procuring the lumber needed for the various projects.

Delay in development of cantonment plans and in starting actual construction work, necessitated demand for exceptionally quick delivery of materials. The volume of lumber required on the various projects ranged from several hundred thousand feet to 44,000,000 feet each.

Recognizing the need for entire industry action in the emergency, the SPA called an industry-wide mass meeting of Southern pine manufacturers, in New Orleans, late in September. At this meeting the manufacturers pledged that the industry "would not fail the government in providing the lumber needed in its National Defense Program" and established the Southern Pine Emergency Defense Committee, providing the machinery essential for complete cooperation with and assistance to the government in procuring its lumber supplies. The defense committee has the assistance of the staff and facilities of the Southern Pine Association, which had performed the service required for the government and the industry prior to establishment of the emergency defense committee. All members of the Southern pine industry, and all of its resources, now are mobilized to aid Uncle Sam in the national defense.

Through the Southern Pine Emergency Defense Committee, which has headquarters in New Orleans and an office in Washington, close contact is maintained with government construction agencies and with all known individual Southern pine operators. Immediately a project located in Southern pine consuming territory is authorized, the emergency committee broadcasts to all known Southern pine mills, the name of the projects, its location, probable quantity of lumber that will be required, date and place for receiving bids on material and such other information concerning the projects as may be available. When the jobs are awarded, notice is sent to all manufacturers so that the contractor or construction Quartermaster will not be delayed in locating sources of supply. Names and addresses of contractors and purchasing agents, date for opening bids for lumber, and whenever possible, a list of the various items required and time limit for deliveries, also are promptly sent to all known Southern pine mills.

Lists of sawmills more readily accessible to the projects are furnished government construction officials on request, to enable them to invite bids on lumber from nearby sources. Every facility possible is furnished to both construction agencies and to sawmills to assure prompt and efficient cooperation. Specific requests by government officials and contractors for certain particular service are promptly handled by the emergency committee and the SPA, and whenever circumstances indicate the need, Association engineers and field men are sent to the sites of projects to assist in every way required.

For all the projects for which contracts have been awarded up to this time, a plentiful supply of Southern pine has been made available, and no complaints have been received by the Association or the emergency committee of delay by the manufacturers in delivering Southern pine to the job. Surveys conducted by the SPA and the defense committee, show that there is an entirely adequate supply of well seasoned, correctly manufactured Southern pine lumber readily available for all government needs. These surveys show not only the total stocks available currently, but also where they are located, and the items and sizes that will be ready for shipment during coming months. This information is placed in the hands of government construction agencies.

Southern pine manufacturers consider it their patriotic duty to give priority voluntarily to government orders, and this is the policy adopted by the industry. However, the manufacturers generally have been able to supply demands of distributors for lumber for private construction without working any hardship or causing undue delay to retailers or consumers.

Many favorable comments have been received from government officials and contractors on the prompt and efficient service given by Southern pine producers in furnishing lumber for the camps and cantonments. Records for rapid construction have been reported at two army cantonments—Camp Shelby at Hattiesburg, Miss., and Camp McClellan, at Anniston Ala. The speed achieved in building these large camps has been attributed by contractors in large part to the prompt delivery of lumber by Southern pine manufacturers and to the pre-cutting and, in certain instances, to pre-fabrication of the lumber before it is turned over to the carpenters for erection of the various tent-houses, mess halls, and other buildings needed by the troops. At Camp Shelby the contractors are using pre-fabricated tent floors—entire floors assembled and nailed together before delivery to the site. At Camp McClellan pre-cut Southern pine is used for building tent-frames, mess halls and certain other buildings which are identical in size and plan. By using pre-cut and pre-fabricated material the carpenters have no sawing to do on the job and the construction work is greatly expedited.

XUM

COTTON IN 1940

BY

Dr. Claudius T. Murchison,
President
The Cotton-Textile Institute, Inc.

IN 1940, the cotton industry witnessed a year of dramatically sharp contrasts, with domestic consumption reaching a new high and with exports of raw cotton slumping to the lowest figures since the Civil War. American domination of the world market for raw cotton was, temporarily at least, ended, but the American cotton industry continued to capture more and more of its home market.

For the first time, domestic consumption touched 8,000,000 bales during a calendar year. This is a substantial increase over the 7,371,000 bales consumed in the 1939 calendar year, and considerably in excess of the previous calendar-year record of 7,418,000 bales in 1937. Thus, the promotional efforts of the industry are beginning to show real results, for only an insignificant percentage of 1940 consumption was accounted for by the requirements of the National Defense Program.

As a matter of fact, the outlook for the future, as far as domestic consumption is concerned, is even brighter, and it is not unreasonable to hope for a record of 8,750,000 bales during the crop year, 1940-41.

Despite a drop of 500,000 spindles in place, from 24,943,302 in 1939, to 24,400,000 last year, the 22,400,000 active spindles operated almost one hundred billion running hours—an average of 4,400 hours per active spindle, the highest on record. The industry produced a total of 9,965,000,000 yards of cloth. Of this quantity, 360,000,000 yards were exported, against 73,000,000 imported, giving a net of 9,671,000,000 yards available. This represents per capita consumption of 73.4 yards, the highest on record; previous peak was 1937, with 72.39 yards per capita.

The National Defense program is estimated to have accounted for approximately 300,000 bales of 1940 consumption, or slightly less than 4 per cent. For the 1940-41 crop year, defense needs may account for 6 per cent of domestic consumption.

The need of the army and navy for numerous articles of cotton is responsible for much year end activity. It puts a strain on every cotton spindle whether or not it is working on defense contracts.

Notwithstanding exceptional demand, prices have not appreciably advanced.

The level during the last quarter of 1940 for staple goods was a trifle below the same period a year before and substantially below most of 1936 and 1937. There was an improvement in prices during the last quarter to the extent of about 10% above mid-summer which brought them to the level prevailing at the beginning of the year. But for most of 1940 prices for staple yarns and grey goods were below what we consider remunerative levels.

Raw cotton was higher during the last quarter than in the same period the previous year and consequently mill margins on staple goods were less favorable.

The drop in raw cotton exports, due of course to the war and to the blockade of the European continent, was the most drastic in history. Total exports in the current season will probably amount to between 1,000,000 and 1,250,000 bales, as compared with normal exports ranging between 6,000,000 and 8,000,000 bales. As a consequence of this serious loss, perhaps 3,000,000 bales will be added to the surplus, indicating a probable carry-over of American cotton of 13,500,000 bales by July 31, 1941. These figures compare with a surplus of 10,600,000 bales on the comparable date in 1940, 12,956,000 bales in 1939, and 11,446,000 bales in 1938.

It should be noted that virtually one-half of this surplus originated in the unrestricted crop year of 1936-37. An additional 25 per cent—that portion which is going into storage now—is the direct result of the European war, while the remaining 25 per cent would, in more nearly normal times, be considered a normal carry-over and has gone into storage only because of excellent Government loan facilities.

It has become doubly apparent that the one sound attack on the continuing cotton problem lies not in further acreage restrictions, parity loans, a marketing certificate plan or a processing tax, but rather in increased domestic consumption. The Cotton-Textile Institute began twelve years ago on this promotional effort. It has enlisted the intelligent and active co-operation of perhaps 100,000 retail stores, large and small, chain and independent. Its efforts are bearing fruit. During 1940, it expanded considerably its Cotton Promotion Program and it is not unreasonable to hope that within a few years we shall attain in this country an annual consumption of 10,000,000 bales. If this figure is reached, we shall have permanently solved the cotton problem.

Consumption is being increased on the triple domestic front—apparel, home furnishings and industry. The several years' trend toward greater prestige of cotton in fashion continued. Interest in fashions influenced by the costumes of earlier days brought to the fore again many of the old-time cotton favorites including checked and plain ginghams, chambrays, calico type prints and crisp feminine sheers such as lawns, dimities and organdies. The war, with the consequent effort to shift the world's fashion capital from Paris to New York, found American designers meeting their newly created opportunities and telling their story in terms of native fabrics, like cotton.

Looking forward to 1941, we see even greater cotton interest and the inspiration of entirely different weaves and new-looking colors. It is evident that all piques, particularly the fine waffle weave, the entire family of crinkled cottons and a wider variety of gingham plaids will continue as leaders. With the advance of the resort season, a variety of slubbed woven cottons such as slub poplins, broadcloths and suitings will reflect the early fashion trends.

In home furnishings and in industry, the technological improvements in cotton will continue to result in greater demand for America's Number One Fabric. The recent past has seen the introduction of wind-resistant, water-repellent, germproofed, sanitized, pre-shrunk, heat and flame-resistant, and super-absorbent cotton fabrics. Moreover, the relatively young American dye industry is also becoming an important factor in the wider acceptance of cotton fabrics. We now have faster and more brilliant dyes for cotton as a result of American research skill than we could ever obtain overseas, and these dyes are making cottons more attractive and useful.

The present physical set-up of the cotton-textile industry can handle all domestic consumption requirements in sight. Reliable estimates show that present operating capacity can process more than 11,000,000 bales of cotton if all spindles

(*Continued on page* 44)

THE PETROLEUM SOUTH: 1940

SYNTHETIC toluene, essential ingredient of explosives, from petroleum at Baytown and Houston, Texas. Synthetic rubber, freeing this country from dependence upon imports and the natural product, from petroleum at Baton Rouge, Louisiana.

Crude oil from the wells of Southern states. Petroleum products from Southern refineries — high-octane "fighting grade" gasoline for America's planes; fuels and lubricants for America's tanks, trucks, and battleships; essential raw and finished materials for America's "war industries"; expanded routine production and distribution of petroleum products for civilian use, growing apace with emergency requirements.

These are factors which promise to give prominence to the petroleum South of today and tomorrow and place the highest importance upon the part that vast area will play in America's defense program. In fact, the trend has awaited no tomorrow for in 1940 the petroleum South contributed largely to unprecedented and record demands for petroleum products. Also the growing productive capacity of the petroleum South in 1940 aided in demonstrating that the American petroleum industry not only is free from actual and potential bottlenecks but is capable simultaneously of meeting military, government, and civilian demands even in times of emergency.

Plans for the Houston plant, the first ever built for the production of toluene from petroleum, were approved on August 1, 1940. The plant was completed and in production before the end of the year. Annual capacity of the $500,000 unit, which can be expanded whenever necessary, totals 2,000,000 gallons, enough toluene for 20,000,000 pounds of TNT. A second and larger plant, to cost $11,000,000, is under construction at Baytown, Texas. It probably will be in operation well before the end of 1941.

Typical of the first plants being built to make synthetic rubber from petroleum is the installation at a Baton Rouge refinery. Costing between $1,000,000 and $1,250,000, this plant will produce only about 2,000 tons a year, yet its operation as well as that of several other small plants in other parts of the country is expected to lead the way for the rapid construction of much larger plants whenever it becomes necessary to build them. Estimated cost of enough capacity to fill the nation's entire rubber needs of around 600,000 tons is between $75,000,000 and $100,000,000. There is no question of the ability of the petroleum industry to supply all the raw material

BY

Victor H. Scales

Director of Public Relations
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needed for these, and even much larger, demands.

Manufacture of super-motor-fuels for airplanes has become a chemical rather than a straight refining problem. Plant capacity already in operation is turning out more than 1,000,000 barrels of aviation fuel a month, and this utilizes only a part of the capacity. In the 12 months from October 31, 1939 to October 31, 1940, U. S. reserve stocks of aviation fuel have mounted from 2,400,000 barrels to more than 6,000,000 barrels. Only the United States, among all the nations in the world, is equipped to manufacture the quantities and qualities of fighting grade aviation motor fuel for all-out military effectiveness.

These chemical developments, and many others, such as the production of glycerin from petroleum, which also was started on a commercial scale in 1940, foreshadow the tremendous changes which are predicted for the petroleum industry of the not-distant future. Petroleum refineries of the South may be transformed into giant chemical plants utilizing crude oil and natural gas as raw materials for the creation of hundreds of industrial chemicals and synthetic, but in many respects, better substitutes for the materials of everyday living.

The South and the Southwest, being richest in supply and reserves of these raw materials, unquestionably will reap a great harvest in the necessary plant expansion. In 1940 the nine Southern oil states produced nearly 60 per cent of all the crude oil of the United States. Their proportion of the nation's nearly 18,500,000,000 barrels of current proved oil reserve inventories totals 67 per cent.

Total production of crude oil in the United States in 1940 is estimated at 1,353,667,000 barrels, of which 793,086,000 barrels were produced in Southern states. At the beginning of 1940 the proved petroleum reserves inventory of the nation amounted to 18,483,012,000 barrels. This inventory represented oil so far found, not "all the oil that is left." More than two-thirds of these reserves, 12,421,712,000 barrels, were in the nine Southern oil states. The accompanying tables gives crude oil production for 1939 and 1940, and proved reserves as of January 1, 1940.

CRUDE OIL PRODUCTION
(In Barrels)

State	1940[1]	1939	*Estimated Proved Reserves Jan. 1, 1940*[3]
Arkansas	25,514,000	21,238,000	320,148,000
Kentucky	5,211,000	5,621,000	44,086,000
Louisiana	103,405,000	93,646,000	1,173,225,000
Mississippi	4,412,000	107,000	6,842,000[2]
Missouri, Tennessee	60,000	90,000	
Oklahoma	155,795,000	159,913,000	1,063,152,000
Texas	495,180,000	483,528,000	9,768,371,000
West Virginia	3,509,000	3,580,000	45,888,000
Total South	793,086,000	767,723,000	12,421,712,000
Rest of U. S.	560,581,000	497,239,000	6,061,300,000
U. S. total	1,353,667,000	1,264,962,000	18,483,012,000

[1]Estimated.
[2]Also includes small reserves in Nebraska and Utah.
[3]Proved reserves in fields already found and at least partly developed. Does not include any estimate for further development of these fields nor any estimates of fields still to be found. New reserves found and developed since 1935 have totaled more than 12,000,000,000 barrels, more than double actual production in the same period.

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Preeminence of Texas in both the South and the nation is evident from this table. This one great state produced 37 per cent of all the crude oil produced in the United States in 1940, and it alone has 57 per cent of all the proved reserves. In Texas the petroleum industry is the greatest employer of industrial labor and the largest taxpayer.

Important to national defense is the fact that oil wells in most leading Southern oil states, and particularly in Texas, have been producing only at a fraction of their capacity. Prorated, or "choked down," in the interests of conservation, these wells can be opened in any national emergency. Undoubtedly they could produce 50 per cent, or more, additional oil to meet any conceivable increased demand.

The nation's refineries have a total daily capacity of 4,721,213 barrels, of which 43 per cent, or 2,012,870 barrels capacity is in 14 Southern states. Only North Carolina and Florida have no refineries. During 1940, despite the unprecedented demand for petroleum products, and the all-time record production at refineries, the crude runs did not nearly reach the total operating capacity. Besides this the country had 431,952 barrels daily of shut-down capacity, most of which is reported in good condition. This shut-down capacity alone is far greater than the total refinery capacity of the country in 1917.

Total U. S. crude runs in 1940 are estimated at 1,291,516,000 barrels, an increase of four per cent over 1939, and the highest total in the history of the industry. Production of motor fuel totaled 614,459,000 barrels, against 611,043,000 barrels in 1939; light fuel oils (gas oil and distillates) rose more than 10 per cent to 179,123,000 barrels, and residual fuel oil three per cent to 316,668,000 barrels.

Domestic demand for motor fuel increased six per cent, from 555,509,000 barrels in 1939 to 590,737,000 barrels in 1940. Consumption of light fuel oils showed the greatest increase of any of the major petroleum products, a gain of more than 18 per cent to 164,571,000 barrels. This reflects principally the continually-growing demand for heating oil for domestic oil burners, a demand which accounts for between 70 and 75 per cent of all light fuel oils used. The abnormal gain in 1940, however, was caused in part by the much colder weather compared with 1939.

Although the South, with its rapidly-expanding industrial and mixed-agricultural enterprises, is consuming an ever-increasing amount of petroleum products and natural gas, its oil and gas wells and refineries produce much more than can yet be used in the South. Dependence of the major oil-consuming areas of the nation, particularly the East coast and Middle West, on Southern producers and refiners is reflected in the huge shipments of crude oil and refined products to these areas. In the first 10 months of 1940 tanker shipments from the Gulf coast to the East coast totaled more than 350,000,000 barrels, equivalent nearly to 30 per cent of all U. S. export and domestic demand for petroleum products in the same period. This was an increase of 8 per cent from 1939. Nor do these figures include the large, but unknown, movement of crude oil and products by inland tank barge and rail from the South up into the great Mid-western markets which to a large extent are dependent upon the South.

The petroleum industry's huge distributing system, which in 1940 moved an average of 165,000,000 gallons of petroleum products every day in the export and domestic trade, has expanded in the South as through the rest of the nation. The preliminary reports of the 1939 Census of Distribution, just released, reveal, for example, that Texas has more service stations than any other state in the country, 15,738 compared with New York's 15,652. The 16 Southern states as a whole had 80,573 service stations, exactly one-third of the U. S. total, guaranteeing Southern motorists complete service wherever they drive. These Southern stations did a retail business of $771,642,000 in 1939, nearly eight per cent of all retail business in the South.

Unfortunately, a large but unknown share of this retail business is represented by the high gasoline taxes paid by motorists, higher in Southern than in other states. The total gasoline tax bill paid by U. S. motorists in 1940 is expected to reach $1,146,000,000, of which $868,000,000 will be contributed to the states and $278,000,000 to the federal government. Total petroleum taxes, on the industry and its products, amounted approximately to the huge sum of $1,500,000,000 in 1940, or about one-tenth of all taxes levied by all federal, state, and local governments.

The average motor vehicle, it is estimated, consumed 740 gallons of motor fuel in 1940, an increase of 12 gallons from 1939, and of 240 gallons from 1920. Price of the 740 gallons bought in 1940, however, on the average, was only $94.35, compared with a 1920 price of $148.70 for only 500 gallons. Taxes in this same period increased, for the average motorist's purchase, from 45 cents in 1920 to $41.88 in 1940. This made the 1940 tax bill equivalent to a cost increase of more than 44 per cent on his fuel bill. The 1940 average federal and state gasoline tax, 5.66 cents a gallon, was the highest ever levied, while the price of gasoline dropped to an average 12.75 cents, the lowest price, except for 1933, since price data first were collected in 1919.

For South Carolina's Progress

SOUTH CAROLINA, long without a state chamber of commerce, now has an organization of this nature. Organized Business, Inc. opened its office in Columbia, October 1, 1940. The Board of Directors is composed of representatives from agriculture, automotive, beverages, building construction, finance, insurance and real estate, manufacturing, manufacturers' agents and commission merchants, natural resources, press, professional, retail, service industries, transporation, shipping and utilities, and wholesale. In addition there are directors from each county, the total number on the board being 120.

The officers are:

C. Norwood Hastie, Charleston, President.

Thomas J. Robertson, Columbia, Treasurer.

D. A. Skinner, Columbia, General Manager.

John K. Breedin, Columbia, Director Public Relations.

Vice Presidents

District 1. Hugh O. Hanna, Hampton.
District 2. M. B. Cross, Eutawville.
District 3. Z. F. Wright, Newberry.
District 4. Douglas Gray, Laurens.
District 5. Spencer McMaster, Winnsboro.
District 6. C. G. Timberlake, Hartsville.

It is anticipated that this will be a militant organization for the economic upbuilding of South Carolina. A recent statement of the aims and objectives said:

"Are you a businessman ready to join in a fight for business; or shall we take everything lying down?

"Organized Business, Incorporated, of South Carolina, was formed:

"1. To present a united front for business by working with Chambers of Commerce, State and local Trade Associations, and similar organizations, as well as individual enterprises, in every way which will promote the general welfare and stimulate private business in South Carolina.

"2. To promote the economic and industrial development of the State.

"3. To support legislation which will benefit and oppose legislation inimical to the people, business and industry of the State.

"4. To establish appropriate departments or bureaus for furnishing information, advice and service to its members upon matters of legislation and administration.

"If you have business before any of the public offices in Columbia we shall be glad to make appointments, or assist in any other manner. In fact, if you are doubtful how to proceed in dealing with any governmental agency, state or national, we shall be glad to serve you, if we can.

"A program of activities is under way. Among these activities are the following, to which immediate attention is be-

(*Continued on page* 64)

$2,000,000 Recycling Plant in Louisiana to Be One of Country's Largest

WORK is now under way at Cotton Valley, Webster Parish, Louisiana, on a $2,000,000 recycling project which will be one of the most modern and largest of such plants in the United States.

The pressure maintenance plant to be built will have capacity to process 150,000,000 cubic feet of gas daily, with an estimated recovery of 10,000 barrels of distillate. It is planned to place this plant in operation early in 1941.

The pressure maintenance system will consist of returning the gas from the deep Bodcaw and "D" sands to those formations, for the purpose of keeping reservoir pressure and energy as strong as possible.

This will involve separation of gas and distillate at pressures above 1200 pounds per square inch and then by one stage of compression raising pressure of the gas to approximately 3,000 pounds per square inch, sufficient for input well requirements.

While the pressure maintenance plant is under construction the field's allowable oil and gas production will be fixed according to practice used since 1937. This method of allocation is governed by acreage, bottom hole pressure and gas-oil ratio factors. The project has been preceded by thorough experimentation and during the time the large pressure maintenance plant is being constructed the small experimental plant will continue to operate, returning gas to the Bodcaw sand at the rate of 15,000,000 cubic feet per day.

The field is an anticlinal structure located on the northeast flank of the Sabine uplift. The structural axis extends northeast and southwest for five miles and the transverse axis is four miles long. Lowest structural contour embraces an area of approximately 12,000 acres, a minimum closure of 600 feet being indicated in the principal producing horizon, the Cotton Valley formation.

The area was discovered in 1922, with the completion of R. D. Webb Merritt No. 1, in the Blossom sand, which was the main oil and gas horizon until 1926 when gas was found in the Lower Glen Rose anhydrite zone. In 1928 oil was found in the lenticular sands below the anhydrite.

Deeper drilling resulted in discovery of the Holloway sand just below the top of the Travis Peak at 5,500 feet. The deep Bodcaw sand was discovered in the same well, but first deep production, from 8,200 feet, was in January, 1937.

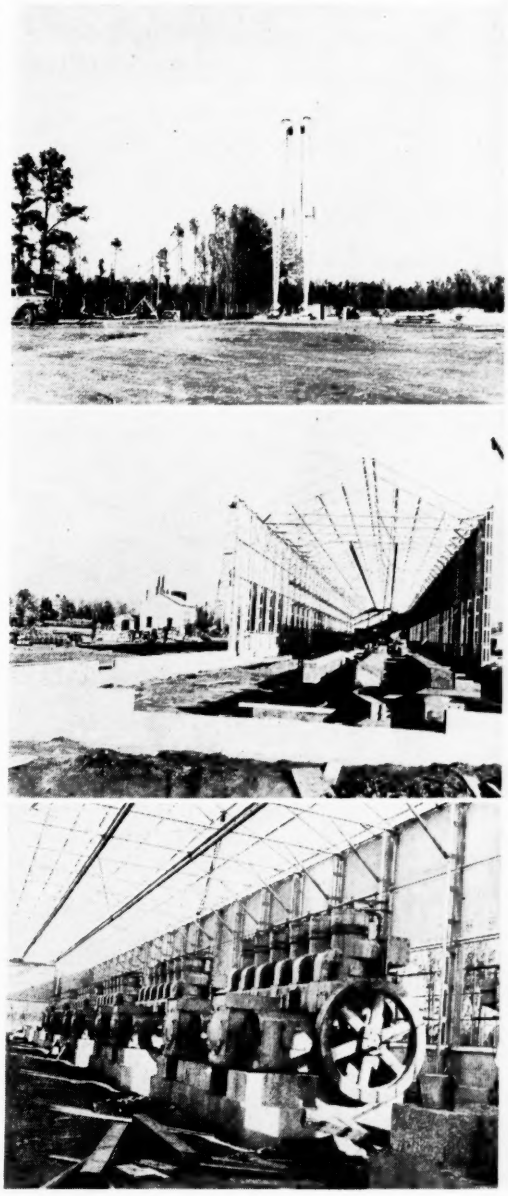
At the start of the project, there were 77 distillate wells in the Bodcaw and 35 brown oil wells in the Bodcaw and "D" sands, with only a very few additional wells required in the distillate area.

The cost of the plant construction will be approximately $1,500,000, including compressors. The field gathering system, costing $500,000, will run the total cost to $2,000,000.

The Cotton Valley operators and land owners signed the unitization agreement effective June 29, 1940. Major B. A. Hardy, commissioner, issued the official order, providing for unitized field development, production and pressure maintenance.

Headquarters have been established at Cotton Valley with John Downs in charge of construction. Mr. Downs is construction superintendent for the contract holder—the Hudson Engineering Company of Houston, Texas. J. R. Butler is in charge as manager of the Cotton Valley Operators Committee.

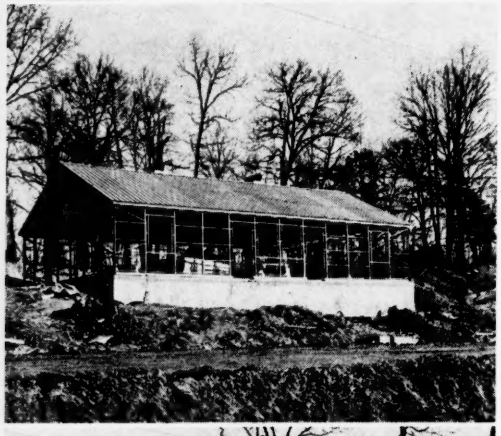
Involved in the agreement are 30 operators and 600 or more royalty owners. The operators include Fhs Oil Company, H. L. Hunt, Magnolia Petroleum Company, W. G. Ray Drilling Company, North American Oil Company, Ohio Oil Company, A. G. Oliphant Oil Corporation, Union Producing Company, Woodley Petroleum Company, Superior Oil Company, Stanolind Oil and Gas Company and others.



Pictured above are scenes as erection progressed on the new $2,000,000 Cotton Valley recycling plant in Webster Parish, La. Cost of the plant's construction, the skeleton of which is shown in the middle photograph, will approximate $1,500,000, including the big compressors shown at the bottom.

Pre-Fabricated Steel Panel Houses For Defense Program

ONE hundred enlisted men of the Marine Corps Base at Quantico, Va., and their families, will soon be occupying the first homes in the defense housing program to be built of a pre-fabricated, welded steel panel framework. Sidewalls of these homes are of asbestos shingles applied over an insulation board sheathing. Fifty two-family dwellings of this type are under construction.



Top—Pre-fabricated steel panels bolted together to form the superstructure of one of the 2-family dwelling units at the Quantico, Va., Marine Corps base. Center—A 2-family dwelling for enlisted men at Quantico. Bottom—Close-up of a Panelbilt 2-family dwelling unit. These are the first units in the defense housing program to be of pre-fabricated, all-welded construction.

The same system is being utilized in the construction of 100 twelve-family apartment building units for shipyard employees at Newport News, Va.

The houses feature a demountable steel frame under a roof of sheet steel panels, and adapt themselves to the defense housing requirements of speed in construction, standardization of design, and high salvage values in the event it should become desirable to dismantle and reconstruct them elsewhere.

Resting on a foundation and floor slab of poured concrete the steel panels need only to be bolted into position, and can be completely erected from floor to finished roof in 80 man-hours, meaning that a 10-man crew can complete the entire steel superstructure of a two-family dwelling in a single eight-hour day.

The floors will be finished with a one-eighth inch asphalt tile laid over the concrete. The houses are 48 feet wide across the front and 28 feet from front to rear. They are divided into two apartments having over-all dimensions of 24 by 28 feet. Each apartment consists of living room, combination kitchen and dinette, two bedrooms and bath. Each of the bedrooms has a large closet with additional closet storage in hall and kitchen.

Each of the double housing units requires approximately six tons of steel, which is fabricated in the plant and protected from corrosion by galvanizing and baked-on finishes. The material reaches the job ready for erection, needing only to be bolted into place by the work crew.

At Newport News, Va., where increased housing facilities are needed for shipyard workers, the same steel construction, known as the Panelbilt system, is being used. One hundred apartment buildings, each having 12 units, will be erected, providing living quarters for 1200 families. The buildings, two-story, will be 156 feet long, and 32 feet deep. Each will consist of six one-bedroom and six two-bedroom apartments.

System Being Used For Defense Housing Program Was Developed By Southern Company

By utilizing the four-foot module steel panel design high salvage values are provided, because the steel panels and frames can be reerected at other locations in any arrangement of rooms having dimensions in multiples of four feet, after their usefulness at any one point has been achieved.

These houses, at Quantico and at Newport News, Va., are being built under a contract with the Bureau of Yards and Docks, Navy Department. The steel panel system being used in their construction is supplied by the Tennessee Coal, Iron and Railroad Company, United States Steel Corporation Subsidiary at Birmingham, Alabama, which developed the Panelbilt system of steel home construction.

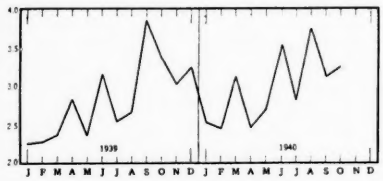
$30.000.000 Defense Plant For Alabama

Washington, D. C.—Construction of a smokeless powder and bag loading plant at Childersburg, Alabama, has just been approved by the President and the National Defense Advisory Commission, according to information received by the Manufacturers Record from Senator Lister Hill of Alabama.

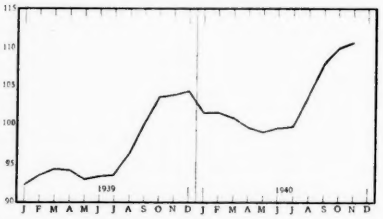
The new project, which will cost approximately $30,000,000, is situated in Talladega County about 25 miles southeast of Birmingham and negotiations covering definite cost of construction and operation are now underway.

INDUSTRIAL PRODUCTION TRENDS

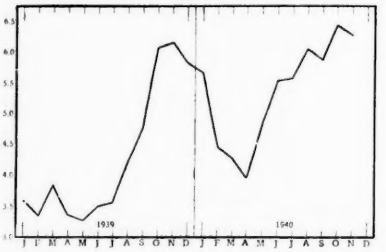
CARLOADINGS
(Millions)



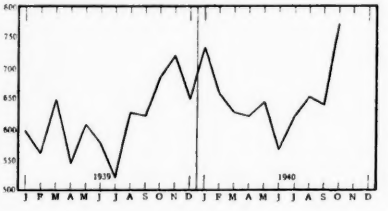
FACTORY EMPLOYMENT
(Unadjusted index, 1923-25=100)



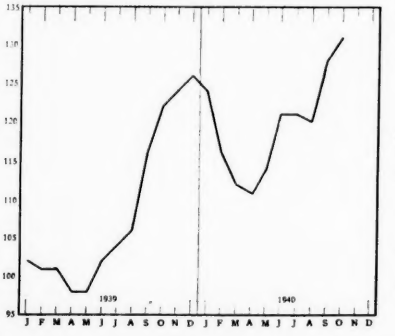
STEEL INGOT PRODUCTION
(Millions short tons)



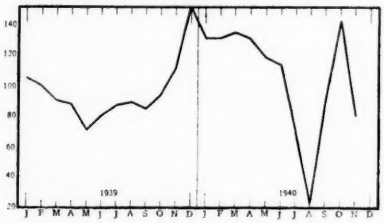
COTTON CONSUMPTION
(Millions of bales)



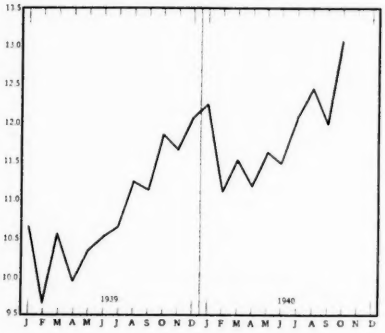
INDUSTRIAL PRODUCTION
(Index 1935-39=100)



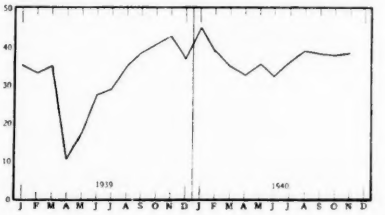
AUTOMOBILE PRODUCTION
(Adjusted index 1923-25=100)



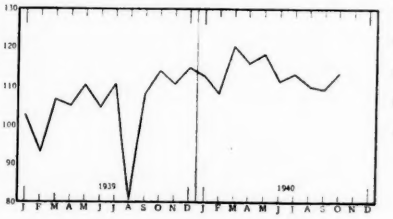
ELECTRIC POWER PRODUCTION
(Billions kilowatt hours)



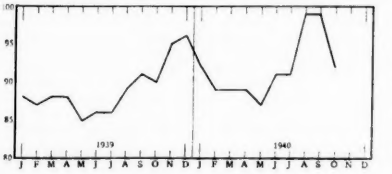
BITUMINOUS COAL PRODUCTION
(Millions of tons)



CRUDE PETROLEUM PRODUCTION
(Millions of barrels)

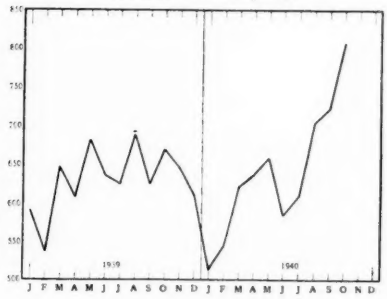


DEPARTMENT STORE SALES
(Adjusted index 1923-25=100)

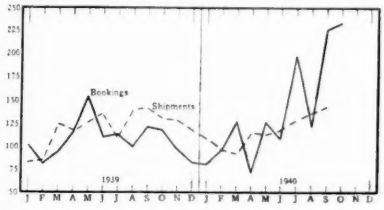


(Continued on page 58)

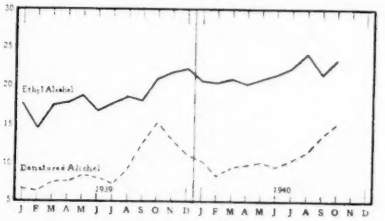
SOUTHERN PINE PRODUCTION
(Million board feet)



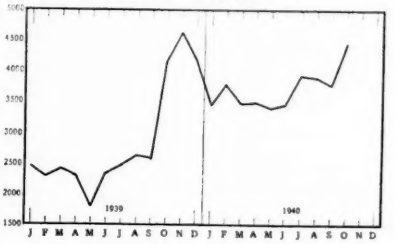
STRUCTURAL STEEL
(Millions of tons)



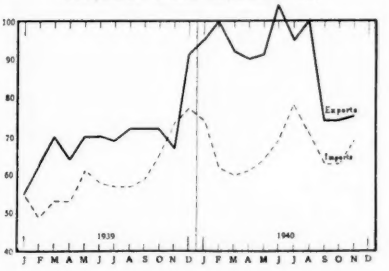
ALCOHOL PRODUCTION
(Millions of gallons)



SYNTHETIC METHANOL PRODUCTION
(Thousands of gallons)



IMPORTS AND EXPORTS
(Adjusted index 1923-25=100)



National Defense Program Awards in the South

(November 16—December 15)

ALABAMA

Unit	*Manufacturer*	*Item*	*Amount*
Qtmtr. Corps	Greeson Mfg. Corp., Montgomery	Tent poles	$15,420
" "	Greeson Mfg. Corp., Montgomery	Wooden tent pins	8,750
" "	West Point Mfg. Co., Fairfax	Cotton huck towels	66,525
" "	Miller & Co., Inc., Selma	Small wooden tent pins—16" long	6,250
Supplies & Accts.	Universal Atlas Cement Co., Leeds, Ala. and Northampton, Pa.	Portland cement	27,510
	Transfer of Funds to the Tennessee Valley Authority	For the rehabilitation of nitrate plant No. 2 at Muscle Shoals for the production of ammonia	6,500,000
Qtmtr. Corps	Greeson Mfg. Corp., Montgomery	Ridge poles	121,000
" "	Greeson Mfg. Corp., Montgomery	36" wooden assembly pins	9,975
" "	Wellington Sears Co., Lanett	34" cotton O. D. duck	55,580
" "	Inca Metal Products Co., Birmingham	Boxtype metal trunks	114,348
" "	Kilby Steel Co., Anniston	Mosquito bar rods	125,000
" "	Alabama Institute for the Deaf & Blind, Talladega	3000 cotton bleached pilloweases	645
" "	West Point Mfg. Co., Lanett	Cotton cloth	85,410
" "	Turner Halsey Co., Lanett	Khaki jean cotton cloth	21,000
" "	Benham Underwear Mills, Scottsboro	Cotton drawers, shorts	51,028
" "	Franklin Ferguson Co., Inc., Florida	Cotton drawers, shorts	57,771
" "	Andala Co., Andalusia	Khaki cotton shirts	42,500

ARKANSAS

Qtmtr. Corps	Ely & Walker Dry Goods Co., Paragould	Khaki cotton shirts	24,900

FLORIDA

Qtmtr. Corps	A. J. Miller Auto Cruiser Trailer Co., Bradenton	Trailer	485,146
" "	Williams Company, Norfolk, Virginia	Plumbing and heating systems, gas fitting and water heaters for temporary buildings at McDill Field	156,155

GEORGIA

Qtmtr. Corps	Nunnally & McCrea Co., Atlanta	Denim working suits	20,398
" "	Happ Bros. Company, Macon	Field jackets	21,000
" "	J. B. Cumming-Brown Co., Rome	Woolen service coats	17,581
Chemical Warfare	U. S. Rubber Co., Atlanta	Cotton duck	260,400
Qtmtr. Corps	Holeproof Hosiery Co., Marietta	Light woolen socks	25,050
" "	H. Schatia Co., South Griffin	Khaki jean cotton cloth	20,979
" "	Big Ace Manufacturing Co., Athens	Khaki cotton shirts	13,466
" "	Perry Brothers Mfg. Co., Athens	Khaki cotton shirts	18,000

KENTUCKY

Medical Corps	The Kelly-Koett Mfg. Co., Inc., Covington	X-ray equipment	35,690
Air Corps	Standard Oil Co., Louisville	Engine fuel	84,577
Qtmtr. Corps	Marine Electric Co., Louisville	Electric distribution and street lighting system at Bowman Field	18,750
" "	Hamilton Carhartt Overall Co., Irving	Denim working suits	48,451
" "	Wheeling Corrugating Co., Inc., Louisville	Tent stovepipe hoods	16,391
" "	Louisville Tin & Stove Co., Inc., Louisville	Stove pipe	22,308
" "	Louisville Tin & Stove Co., Inc., Louisville	Spark arrestors	1,840
" "	Louisville Tin & Stove Co., Inc., Louisville	Spark arrestors	34,000
Supplies & Accts.	Standard Oil Co., Louisville	Navy aviation gasoline	637,674
" "	Standard Oil Co. (Inc. in Ky.), Louisville	Motor gasoline	15,368
" "	Standard Oil Co. (Inc. in Ky.), Louisville	Bunker fuel oil	49,254
Yards & Docks	Emergency Products Div. Westinghouse Electric & Mfg. Co., Louisville	For construction of gun equipment plant on Ohio River near Louisville	5,000,000
Medical Corps	Kelley-Koett Mfg. Co., Inc., Covington	X-ray equipment	38,400
Qtmtr. Corps	Louisville Tin & Stove Co., Inc., Louisville	Empty tool boxes	17,425
" "	General Shoe Lace Co., Inc., Louisville	Lace service shoes	9,720
" "	Kane Mfg. Co., Louisville	Light serge trousers	39,000
" "	Standard Oil Co. of Ky., Louisville	Fuel	154,281
Ordnance	Shuler Axle Co., Inc., Louisville	Drop forgings	9,907
Qtmtr. Corps	Union Underwear Co., Frankfort	Cotton drawers, shorts	206,397
" "	Louisville Tin & Stove Co., Inc., Louisville	1 qt. tin dippers	24,000

LOUISIANA

Qtmtr. Corps	Shreveport Mattress Co., Shreveport	Cotton mattresses	20,646
Supplies & Accts.	Standard Oil Co. of New Orleans, La.	Bunker fuel oil	137,300
Qtmtr. Corps	Aeromotor Company, Chicago, Illinois	Steel forestry type observation towers, Barksdale Field	4,200
" "	Haven Busch Co., Grand Rapids, Michigan	Steel tower stairways, Barksdale	3,045
" "	Equitable Equipment Co., New Orleans	All steel, single-screw tug	140,000
Supplies & Accts.	Gulf & Valley Cotton Oil Div. of Blue Plate Foods, Inc., New Orleans	Salad oil	537,149

MARYLAND

Qtmtr. Corps	Wallace M. Quinn, Crisfield	Shelter-half tents	27,250
Medical Corps	S. Rosenbloom, Inc., Baltimore	Bath robes	65,012
Chemical Warfare	American Blower Co., Baltimore	Unit heater	1,338
" "	Maryland Lumber Co., Baltimore	Lumber	2,472

Unit	*Manufacturer*	*Item*	*Amount*
Ordnance	Revere Copper & Brass Co., Baltimore	Small arms ammunition	$77,859
"	Koppers Co., Bartlett Hayward Div., Baltimore	Artillery material	9,956,000
Qtmtr. Corps	Mount Vernon-Woodberry Mills, Baltimore	Cotton twill tent cloth	169,900
Marine Corps	Mount Vernon-Woodberry Mills, Baltimore	Khaki cotton duck	11,200
" "	John Duer & Sons, Inc., Baltimore	Tapestry cloth	835
Supplies & Accts.	Revere Copper & Brass, Inc., Baltimore Div., Baltimore	Copper-nickel alloy plates	54,134
" "	National Lead Co., Baltimore Branch, Baltimore	Ingot anti-friction metal	21,510
Qtmtr. Corps	National Enameling & Stamping Co., Baltimore	Heavy galvanized buckets	8,108
Ordnance	Revere Copper & Brass, Inc., Baltimore Div., Baltimore	Brass coils	53,650
" "	Revere Copper & Brass, Inc., Baltimore Div., Baltimore	Hard copper rotating bands	342,677
Qtmtr. Corps	Fashion Cut Clothes, Baltimore	Woolen service coats	19,690
Chemical Warfare	Frank Maxa, Jr., Abingdon	Washed gravel	2,295
" "	T. B. Gatch & Sons, Inc., Baltimore	Stone chips	1,848
" "	G. L. Stancill, Joppa	Sand and gravel	1,740
" "	The L. A. Benson Co., Inc., Baltimore	Can opening machine	1,540
" "	Harry T. Campbell Sons Co., Towson	Prepared concrete	11,130
" "	The Arundel Corp., Baltimore	Crushed stone	770
" "	Baltimore Cooperage Tank & Tower Co., Baltimore	Vacuum filters	3,750
" "	Mt. Vernon-Woodberry Mills, Baltimore	Duck	60,848
Air Corps	Fairchild Airplane & Engine Corps., Hagerstown	For additions to the existing plant and the construction of a separate plant	982,891
Qtmtr. Corps	Maryland Workshop for the Blind, Baltimore	100,000 cotton bleached pillowcases	21,500
Ordnance	United States Cartridge Co., Baltimore	Small arms plant, St. Louis	87,279,790
Marine Corps	Isador S. Turover, Bethesda	Lumber	1,433
" "	Washburn Crosby Co., Trade Name Eastern Div. of General Mills, Inc., Baltimore	Flour	1,645
" "	Baltimore Lumber Co., Baltimore	Lumber	570
" "	S. Rosenbloom, Inc., Baltimore	Cotton shirts	11,205
" "	Wm. E. Hooper & Sons Co., Baltimore	Cotton duck	1,258
Supplies & Accts.	The Alexander Milburn Co., Baltimore	Oxyacetylene torches	46,060
" "	The L. A. Benson Co., Inc., Baltimore	Carbon steel twist drills	46,482
" "	Revere Copper & Brass Co., Inc., Baltimore Div., Baltimore	Condenser tubes	45,895
" "	Fairchild Aircraft Div. of Fairchild Engine and Airplane Corp., Hagerstown	Airplanes	24,603
" "	The H. L. Piel Co., Baltimore	Canned sauerkraut	117,376
" "	National Lead Co., Baltimore Branch, Baltimore	Sheet lead	30,569
" "	Mt. Vernon-Woodberry Mills, Inc., Baltimore	Cotton canvas	108,992
Yards & Docks	McLean Contracting Co., Baltimore	Contract No. 4349, additional work at Norfolk, Va., "B" furnish weight handling equipment	61,000
	MISSISSIPPI		
Qtmtr. Corps	Reliance Mfg. Company, Laurel	Flannel shirts, O. D.	14,682
" "	Irwin B. Schwabe Co., Inc., New Albany	Flannel shirts	26,705
" "	Stahl Urban Co., Brookhaven	Light serge trousers	27,423
" "	Seminole Mfg. Co., Columbus	Light serge trousers	26,973
" "	The Alden Mills, Meridian	Light woolen socks	116,400
" "	Stahl Urban Co., Brookhaven	5,000 O. D. mackinaw coats	8,741
	MISSOURI		
Medical Corps	Stix, Baer & Fuller Co., St. Louis	Mattress covers	5,814
" "	Buck X-Ograph Co., St. Louis	Developing units	13,035
Qtmtr. Corps	Royal Bedding Co., St. Louis	Cotton mattresses	39,700
" "	International Shoe Co., St. Louis	Service shoes type "B"	147,743
" "	Brown Shoe Co., Inc., St. Louis	Service shoes type "B"	224,055
" "	International Shoe Co., St. Louis	Service shoes type "E"	126,267
" "	Bettinger Trunk Co., Kansas City	Wooden trunk lockers	30,000
" "	Rice-Stix Dry Goods Co., St. Louis	Wooden trunk lockers	43,500
" "	Luce Mfg. Company, Kansas City	Wooden trunk lockers	89,100
" "	Neevel Mfg. Co., Kansas City	Wooden trunk lockers	44,500
Ordnance	Metal Goods Corp., St. Louis	Copper tubing	16,938
Air Corps	Standard Steel Works, North Kansas City	Trailers, dollies, spare parts	173,809
Qtmtr. Corps	J. A. Lany Mfg. Co., Sedalia	Denim working suits	24,588
" "	Pyramid Clothing Mfg. Co., St. Louis	Denim working suits	9,450
" "	Canvas Products Co., St. Louis	Barrack bags	141,699
" "	A. F. Martin Mfg. Co., Tipton	Light serge trousers	17,091
Ordnance	Remington Arms Co., Inc., Bridgeport, Connecticut	For the procurement of equipment and for operation of small arms ammunition plant near Lake City	73,575,261
Signal Corps	Air Communications, Inc., Kansas City	Parts for Market-Beacon receiving equipment	164,215
Ordnance	S. G. Adams Co., St. Louis	Containers	6,934
Air Corps	Shell Oil Co., Inc., St. Louis	Fuel	103,044
Qtmtr. Corps	Foley Brothers, Inc., St. Paul, Minn., and Walbridge, Aldinger Company, Detroit, Michigan	For the construction of a small arms ammunition plant located near Lake City	7,500,000
" "	The Alligator Company, St. Louis	Raincoats, oil treated, O. D. dismounted	235,265
Supplies & Accts.	Speas Company, Kansas City	Vinegar	34,916
" "	The Kansas Flour Mills Co., Kansas City	Canned wheat flour	21,961
" "	The Emerson Electric Mfg. Co., St. Louis	Electric desk and wall fans	34,830
Yards & Docks	Union Wire Rope Corp., Kansas City	Steel wire rope	49,393
Qtmtr. Corps	International Shoe Co., St. Louis	Laced type "J" leather boots	44,499
" "	Henry Evers Mfg. Co., St. Louis	Upright tent poles	85,047
" "	Gideon-Anderson Lumber Co., Gideon	Wooden tent pins	202,500
" "	Baker Lockwood Mfg. Co., Kansas City	Component parts for pyramidal tents, canvas hoods	17,278

(*Continued on page* 54)

New Industrial Plants and Expansions in the South During December, 1940

Contracts Awarded

Ala., Alexander City—Coca Cola Bottling Co.; plant	
Ala., Fairfield—Tennessee Coal, Iron & Railroad Co.; coke ovens	
Ala., Sheffield—Reynolds Metals Co.; aluminum plant	$23,500,000
Ala., Tarrant—Alabama By-Products Corp.; coke ovens	
Ark., Glenwood—North American Manganese Corp.; manganese ore milling plant	
Ark., Murfreesboro—National Quicksilver Company; production plant	
Fla., Miami—Southern Bell Telephone & Telegraph Co.; addition	36,000
Fla. Miami Beach—Florida Power & Light Co.; substation	
Fla., Miami Beach—Southern Bell Telephone & Telegraph Co.; building	
Fla., Port Everglades—Pacific Molasses Co.; tank farm	400,000
Ga., Americus—Graham Aviation School; building	300,000
Ga., Atlanta—Atlanta Tallow Company; building	
Ga., Atlanta—Morris Hankins; warehouse	15,000
Ga., Cedartown—National Oil Products Co.; plant	30,000
Ga., Macon—Reynolds Metals Co. (government owned); munitions plant	1,000,000
Ga., Monroe—Piedmont Refrigeration Association; meat curing plant	21,900
Ga., St. Mary's—St. Mary's Kraft Corp.; pulp mill	4,000 000
Ky., Ashland—American Rolling Mill Co.; improvements	1,000,000
La., Baton Rouge—Evans Electrical Supply Co.; warehouse	12,740
Md., Baltimore—American Hammered Piston Ring Company; alterations and additions	10,000
Md., Baltimore—Autogenius Company; alteration and addition	25,000
Md., Baltimore—Consolidated Gas, Electric Light & Power Co.; alterations	
Md., Baltimore—Crown Cork & Seal Company; warehouses	350,000
Md., Baltimore—Diamond Cab Company; garage	
Md., Baltimore—Lord Calvert Beverages; improvements	
Md., Baltimore—National Brewing Company; storage building	
Md., Baltimore—Revere Brass & Copper Co.; storage building	
Md. Baltimore—Standard Metal Refining Co.; building	
Md., Baltimore—Standard Oil Company of New Jersey; storage building	26,000
Md., Cumberland—Celanese Corporation of America; expansion	250,000
Md., Hagerstown—Fairchild Airplane & Engine Corp. (government owned); plant	982,890
Md., Sparrows Point—Rheem Manufacturing Co.; addition	
Miss., Clarksdale—Greyhound Bus Lines, Inc.; bus terminal	50,000
Mo., Lake City (RFD from Buckner) — Foley Brothers, Inc. & Walbridge, Aldinger Co. (government owned); arms ammunition plant	
Mo., St. Louis—Air Reduction Sales Co.; addition	
Mo., St. Louis—Curtiss-Wright Corp.; plant	8,000,000
Mo. St. Louis—Federated Metals Company; addition	10,000
Mo., St. Louis—Illinois Terminal Railroad Co.; freight warehouse	
Mo., St. Louis—Independent Oil Company; garage	
Mo., St. Louis—St. Louis Ice Cream Company; plant improvement	
Mo., St. Louis—Thurmaduke Corporation; factory	
N. C., Badin—Carolina Aluminum Company; expansion	
N. C., Charlotte — Query-Craig Feed & Seed Company; building	
N. C., Charlotte—H. M. Wade; building	
N. C., Shelby—Star Publishing Co.; plant	
N. C., Spencer—Duke Power Company; addition	3,000,000
N. C., Winston-Salem—Atlantic Greyhound Company; bus terminal	150,000
N. C., Winston-Salem — Duke Power Company; power transmission line	
Oklahoma—Pure Oil Company; pipeline	
S. C., Anderson—The Appleton Company; addition	
S. C. Lancaster—Springs Cotton Mills; addition	75,000
Tenn., Alcoa—Aluminum Company of America; sheet mill	
Tenn., Dyer—Brown Shoe Company; plant	
Tenn. Memphis — Illinois Central R. R.; enlargement program	21,000
Tenn., Memphis—Southern Bell Telephone & Telegraph Co.; addition	
Tenn., Nashville—Coca-Cola Bottling Works; addition	
Tex., Austin—Austin Laundry & Dry Cleaning Co.; addition	12,800
Tex., Beaumont—Southwestern Bell Telephone Company; building	1,000,000
Tex., Brownwood—Banner Creamery; plant	75,000
Tex., Dallas—North American Aviation, Inc.; plant	7,000,000
Tex., Dallas—Southern Aircraft Corp.; plant	
Tex., Harlingen—Knapp Motor Company; building	17,500
Tex., Houston — American Brake Shoe & Foundry Co. (Southern Wheel Div.)	29,000
Tex., Houston—John Deere Plow Company; warehouse	
Tex., Houston—Wier Long Leaf Lumber Co.; building	30,000
Tex., Port Arthur—V. J. Kurzweg; warehouse	
Tex., San Antonio—Frito Company; addition	
Va., Norfolk — Chesapeake & Potomac Telephone Co.; addition	300,000
Va., Norfolk—Norfolk & Western Railway Co.; warehouse	400,000
Va., Vinton—Roanoke Weaving Company; warehouse	
W. Va., Charleston—Union Concrete Pipe Company; plant	
W. Va., Clarksburg—Baltimore & Ohio R. R.; garage	
W. Va., Morgantown—E. I. duPont de Nemours & Co., Inc. (government owned); ammonia plant	15,000,000
South—Atchison, Topeka & Santa Fe Railway; rail	
South—Louisville & Nashville R. R.; cars	3,500,000
South—Southern Railway Company; trains	

Contracts Proposed

Ala., Mobile—Southern Bell Telephone & Telegraph Co.; expansion	$2,000,000
Ark., Camden—Williams Roofing Company; plant	
Ark., Malvern—Magnet Cove Barium Corp.; expansion	
D. C., Washington—Southern Railway Company; trains	3,000,000
Fla., Everglades—Peninsular Oil & Refining Co.; expansion	50,000
Fla., Miami—Nathan Straus-Duparquet, Inc.; hotel fixture plant	
Georgia—Georgia Power Company; building	
Ga., Atlanta—Atlanta Constitution; building	
Ga., Augusta—Southeastern Fur Company; fur storage & sales building	
Ga., Augusta—Southern Cotton Oil Co.; hull house building	
Ga., Columbus—Teche-Greyhound Lines; bus terminal	40,000
Ga., Palmetto—Palmetto Cotton Mills; addition	
Kentucky—Chesapeake & Ohio R. R.; branch line	780,000
Kentucky—Island Creek Coal Co.; coal mines	
Kentucky—Princess Elkhorn Coal Co.; coal development	
Ky., Harrodsburg—Weisman Company; coat factory	
Ky., Lexington—Southeastern Greyhound Lines; busses	350,000
Ky., Louisville—Westinghouse Electric & Manufacturing Co. (government owned); naval gun equipment plant	5,000,000
La., Abbeville—Louisiana Cane Products, Inc.; syrup mill	90,000
La., Eola—Mockley Petroleum Corporation; gasoline extraction plant	
La., Jefferson Island—Jefferson Island Salt Mining Co., Inc.; plant rebuilding	
La., Marrero—Celotex Corporation; warehouse	
La. New Orleans—American Brewing Co.; beer cooling room	
La., New Orleans—Louisiana Shipyards, Inc.; shipbuilding	1,500,000
La., Opelousas—Thistlethwaite Planting Co.; syrup plant	10,000
Md., Baltimore — American Agricultural Chemical Co.; addition	23,000
Md., Baltimore—Henry M. Rackensperger; bottling plant	
Md., Sparrows Point — Bethlehem Steel Company; plant expansion	
Mo., Kansas City—North American Aviation, Inc. (government owned); aircraft plant	
Mo., Kansas City—Southwestern Greyhound Lines; garage	
Mo., North Kansas City—Staley Milling Company; feed mill	
Mo., St. Louis—Continental Can Company; factory, office & warehouse	
Mo. St. Louis—Missouri Pacific Lines; diesel engines	
Mo., St. Louis—Pulitzer Publishing Company; building	
Mo., St. Louis—U. S. Cartridge Company (government owned); small arms ammunition plant	105,887,790
Mo., St. Louis—Velvet Freeze Ice Cream Co., Inc.; warehouse addition	
Mo., St. Louis — Western Cartridge Co. (government owned); small arms ammunition plant	8,000,000
N. C., Asheville—Pure Oil Company; warehouse	10,000
N. C., Burlington—Burlington Mills Company; expansion program	3,000,000
N. C., Elkin—Chatham Manufacturing Co.; storage building	
N. C., Greensboro—Blue Bell-Globe Manufacturing Co.; plant	
N. C., Hazelwood—Dayton Rubber Manufacturing Co.; rubber plant	100,000
Tenn., Maryville—Aluminum Co. of America; sheet mill	
Tenn., Memphis—Kraft-Phenix Cheese Corp.; cheese plant	25,000
Tenn., Milan—Procter & Gamble (government owned); ammunition loading plant	14,000,000
Tex., Bellaire—Texas Company; shop, etc.	100,000
Tex., Brownsville—W. R. Davis; refinery	
Tex., Denison—Kraft Cheese Company; plant addition	
Tex., Fort Worth — Southwestern Bell Telephone Co.; addition	
Tex., Fort Worth—Texas Steel Company; pattern shop	21,000
Tex., Garland—Southern Aircraft Corp.; plant	
Tex., Houston—American Can Company; addition	500,000
Tex. Houston—Chicago Bridge & Iron Co.; office & warehouse	
Tex., Houston—Ferris-Hall Body & Trailer Co.; plant	20,000
Tex., Houston—McEvoy Company; machine gun mounts manufacturing	
Tex., Katy—Humble Oil & Refining Co.; recycling plant	2,500,000
Tex., Marshall—Southern Gas Company; gas line extension	
Tex., San Antonio—John Fest; poultry plant	
Tex., San Antonio—Ply-Bilt, Inc.; factory	
Virginia—Virginia Public Service Co.; expansion program	4,000,000
Va., Danville—Morse-Rogers Steel Co.; furniture plant	
Va., Glen Wilton—Triton Chemical Co., Inc.; ammunition plant	
Va., Harrisonburg—Daily News-Record; building	25,000
Va., Lynchburg—Chesapeake & Potomac Telephone Co.; exchange	37,000
Va., Radford — Chesapeake & Potomac Telephone Co.; building & equipment	350,000
Va., Richmond—Appalachian Electric Power Co.; refinancing plan	
Va., Richmond—Atlantic Greyhound Corp.; busses	1,380,000
Va., Richmond—Capitol Greyhound Lines; busses	21,000
Va., Richmond—Richmond Greyhound Lines; busses	276,000
Va., Roanoke—Norfolk & Western Railway Co.; equipment	987,000
W. Va., Charleston — South Penn Oil Company; plant, office, etc.	
W. Va., Weirton—National Steel Corp.; blast furnace	

After seven every evening and all day every Sunday, Long Distance telephone service offers a bargain bill.

It's an all-star "talkie," rich in sound effects, full of human interest, featuring your favorite friends and relatives.

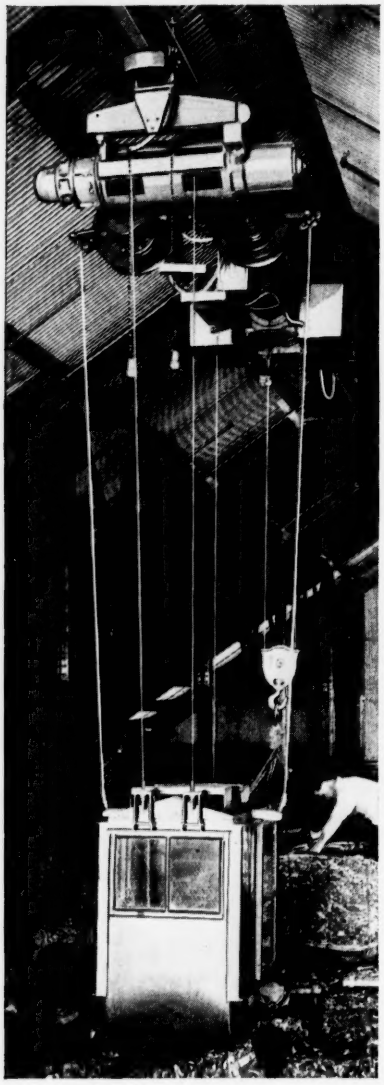
News, comedy, heart-throbs—you're always sure of a good show by Long Distance. The prices on this page show how *little* it costs for a *lot* of entertainment! ★

★ *(The night and Sunday rates shown here are for 3-minute, station-to-station calls. You'll find rates to many other points on the inside front cover of most telephone directories.)*

New Ways of Doing Things

Tramrail Carrier With Raise-Lower Cab

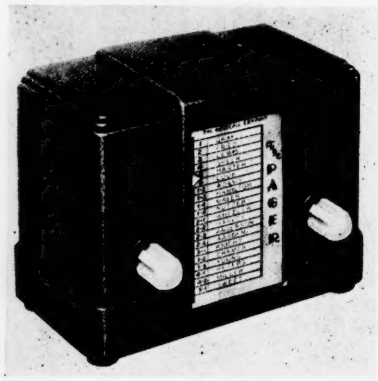
Available in two general forms, a new type of tramrail carrier, with raise-lower cab, has been developed and introduced by the Cleveland Tramrail Division of The Cleveland Crane and Engineering Company, Wickliffe, Ohio. One form provides for raising and lowering of cab and load together, while the other provides for the cab and load raising and lowering independently of each other. Which type to use is contingent upon the service and materials to be handled, but with the use of either type one operator may take care of all operations involved in moving materials with an electric cab-controlled overhead tramrail system. These carriers are especially suitable for the economical handling of kegs, drums, rolls of paper and cloth, lumber, sheet steel, cement, cereals and many other products. The unit illustrated handles unwieldy loads of cork. It has a vertical travel of 40 feet for both cab and hook, although equipment can be furnished for operation from much greater heights if desired.



Tramrail Carrier With Raise-Lower Cab

"Pager" Code-Sending Station

Augmenting its line of "code-sending" stations, the new "Pager" unit has been introduced by The Autocall Company of Shelby, Ohio. This station transmits codes to locate from one to twenty individuals and is but one of three types of Autocall code-sending devices. Other types are available in capacities from ten to ninety codes. With numbers assigned to persons wanted most frequently, the new "Pager" is dialed to the party wanted, and this transmits an audible code, simultaneously, to all departments on the premises. The code is sounded by scientifically selected and located signals which may be musical chimes, mellow-toned bells or sharp and insistent gongs.



Autocall Code-Sending Station

Reynolds Improved Trucks

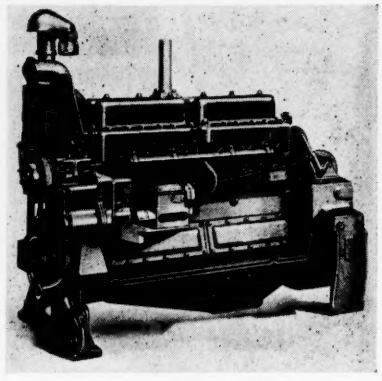
By virtue of the sturdy construction, Reynolds industrial trucks made by the Lansing Company of Lansing, Mich., continue in faithful and efficient operation after many years of service. More than 30 years ago, according to the Western Grocer Company of Marshalltown, Iowa, that company bought its first No. 21 Reynolds warehouse trucks, and these, with more than 250 others purchased during subsequent years, are still being used in the company's warehouses. In the meantime, as improvements have been made from time to time, the company states that the appellation, "Reynolds Improved Trucks," is warranted. A testimonial from Montgomery Ward & Company, Chicago, states that the company has used these trucks for approximately 30 years and that it has now about 5,000 Reynolds trucks in service at 7 plants, many of them in daily service for the past 15 or 18 years.

Small Stover Diesel Engines

The Stover Manufacturing Company of Freeport, Ill., announces a new line of Diesel engines equipped with the Lanova combustion chamber, that develop more power per cubic displacement and per pound, and that can be sold at proportionately lower cost. These new Stover Diesels, which are now ready for delivery, are smoother running and more economical to operate, it is claimed. They are available in four sizes and with a variety of mountings. The 7½-horsepower and 10-horsepower models are single cylinder, while the 15-horsepower and 20-horsepower models are of the twin cylinder type. The twin cylinder models have No. 1 Bell housing.

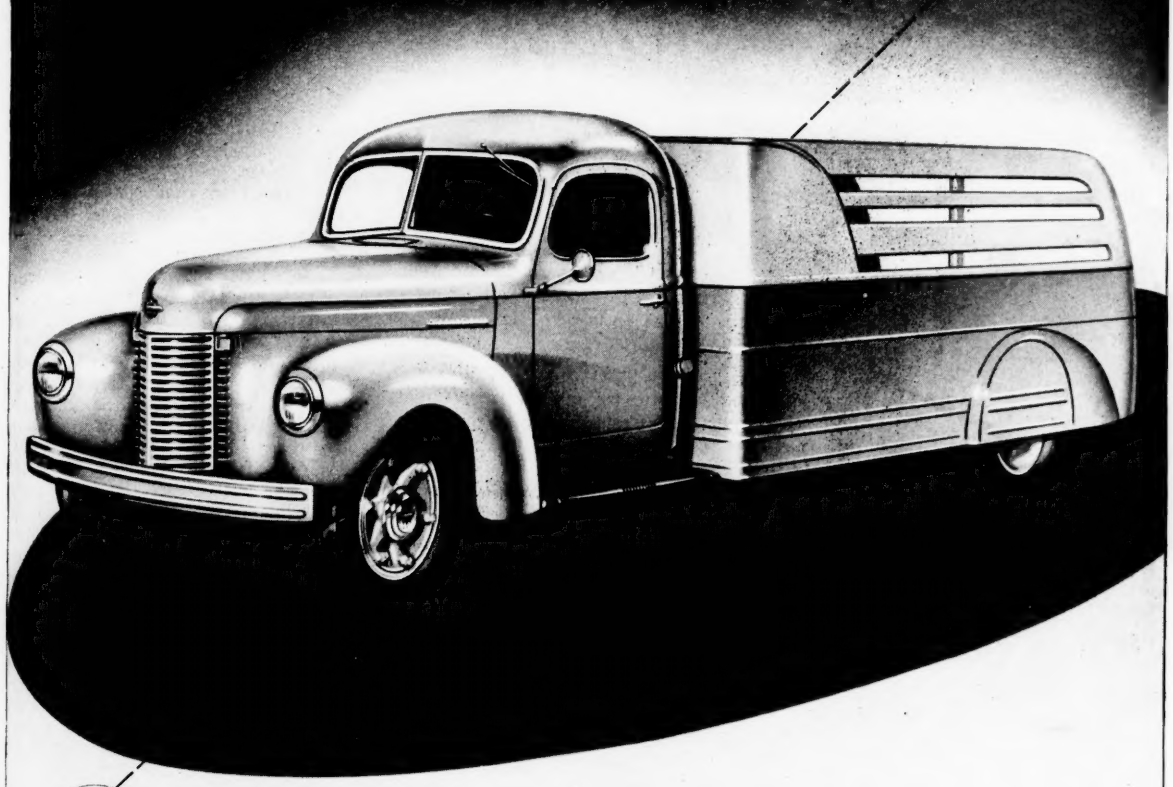
Heavy-Duty Natural Gas Engines

Designed for heavy duty operation with a minimum of maintenance, three models of natural gas engines, built in two cylinder sizes, have been announced by Caterpillar Tractor Company of Peoria, Ill. Model 4600G is a six cylinder unit and Model 4400G is a four cylinder engine, both having a bore of 4¾ inches and a 5½-inch stroke. They develop 74 and 48 horsepower, respectively, at 1600 maximum governed RPM. A small four, Model 3400G, with a bore and stroke of 3¾ inches by 5 inches, develops 34 horsepower at 1650 RPM. The three engines are of the valve-in-head type with heat resistant alloy valve seat inserts provided on all models. The lubricating system provides efficient filtering and full pressure lubrication to all working engine parts, and in addition there is an upper-cylinder lubricator to provide extra valve lubrication for use with dry natural gas fuel. A combination gas-gasoline carburetor is standard equipment, and though the engine will satisfactorily burn gasoline for short periods such as for starting when gas is not available, the fuel system is set for the most efficient combustion of natural gas.



Natural Gas Engine for Heavy Duty Operation

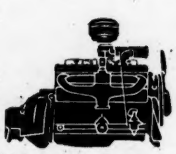
THE *New* INTERNATIONAL TRUCKS*



All-Truck Trucks *Better Than Ever!*

International Harvester is proud to present "The New Internationals"... beautiful in appearance, powered beyond requirements, engineered for unbeatable economy.

The heart of the remarkable economy in all the light-duty models is the new International-built Green Diamond Truck Engine...exclusively International.



The new Green Diamond Engine

The smooth performance of this power-giant, plus its sensational low-cost operation, make these new K-Line Internationals big money-savers on any hauling job.

There are new double-anchor hydraulic brakes; long, easy-riding springs; sealed-beam headlights; safety glass throughout; a new all-steel Safety Comfort-Cab; and many other features.

Phone any International Dealer or Branch for a *New* International demonstration. And write for a catalog.

INTERNATIONAL HARVESTER COMPANY
180 North Michigan Avenue Chicago, Illinois

Cotton in 1940

(*Continued from page* 32)

were operated three shifts of 40 hours or a total of 120 hours per week, and this capacity could be increased by 20 per cent should national emergency dictate a 144-hour operation.

Progress in Coal

(*Continued from page* 26)

duction in West Virginia in 1940 was the largest since 1929. As a result, the large coal-carrying railroads traversing the State and other related and dependent industries enjoyed an exceedingly prosperous year. Their outlook for 1941, with coal production increasing in volume, also is improved.

Southern Construction Reaches New High in 1940

(*Continued from page* 29)

Radford for a site in Indiana just across the Ohio River from Louisville, Kentucky. A toluene plant for Shell Oil Company, Houston, was another important development in the explosives field. Atlas Powder Company started work on a third unit at Joplin, Missouri, and Solvay Process prepared to restore its Hopewell, Virginia, sodium nitrate plant.

Southern aircraft plant expansion took its expected upward course during August, with Glenn L. Martin announcing his $24,000,000 expenditure; North American Aviation, Inc., starting a $6,500,000 Dallas, Texas plant; Vultee Aircraft initiating a $6,000,000 addition at the new Nashville, Tennessee Stinson plant, and Curtiss-Wright making arrangements to build a large plant at St. Louis, Mo.

The Reynolds Metals Company, Inc., a Richmond, Virginia concern, received a $15,800,000 Reconstruction Finance Corporation loan for an aluminum plant to be located in Alabama for production of 20 million pounds of the metal so essential to aircraft manufacture. Aluminum Ore Company, Mobile, subsidiary of Aluminum Company of America, announced additions to raise its capacity 50 percent. Tennessee Valley Authority publicized start of its new $25,000,000 program, including Cherokee dam on the Holston River, a large steam plant near Watts Bar dam and additional generating capacity at Wilson and Pickwick Landing dams.

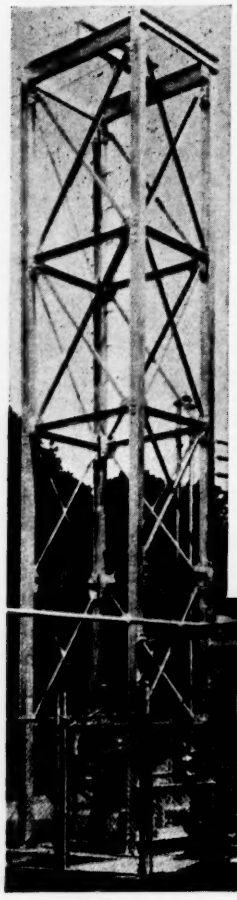
New paper plant construction also was proposed during August, due in some measure to Nazi occupation of Scandinavian countries and increasing Canadian war efforts. Two such mills were proposed, both in south Georgia. C. H. Murdick, of Allied Industries, Inc., New York, was reported interested in establishment of a 150-ton mill near Valdosta. St. Marys Kraft Corporation was incorporated with a $1,000,000 authorized capital for the purpose of setting up a pulp and paper products plant.

Army and navy construction continued, with such projects as the $2,193,000 Camp Jackson in South Carolina; temporary buildings at Fort Benning, Georgia, Fort Knox, Kentucky; additional buildings at the Naval Academy; structures at the Southeast Air Base, Mobile, MacDill Field, at Tampa, and at various other points.

September saw ground broken and bids taken for the $24,000,000 program at the Martin aircraft plant, Baltimore, as excavation started on the $4,000,000 Vultee extension at Nashville and it was revealed that the $8,000,000 Curtiss-Wright project at St. Louis, Missouri, was a sevenfold expansion of operations at that point. Bag loading facilities to cost $10,000,000 were proposed in Virginia across the river from the $25,000,000 project being carried out at Radford by Hercules Powder Company. The contract was let for a $5,000,000 shipyard for Consolidated Steel Corporation, holder of a large destroyer building commission from the U. S. Navy.

In the same month a financial deal was approved for $5,000,000 improvements at the Bogalusa, Louisiana, plant of Gaylord Container Corporation. Contracts were awarded by Consolidated Gas, Electric Light & Power Company for generators and boilers to be installed in the company's third large addition, this to be made at Riverside station, Dundalk. A plan of Appalachian Electric Power

(*Continued on page* 60)

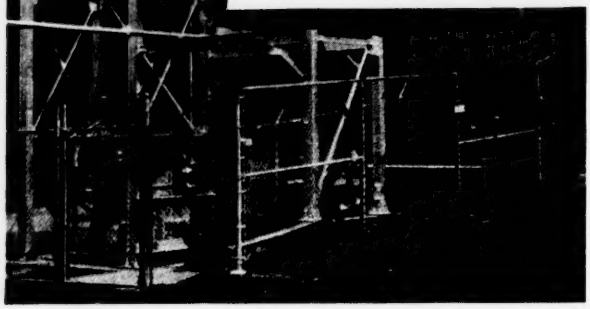


"INSTALLED IN 1932, This STERLING Turbine Pump IN PERFECT CONDITION TODAY!"

Read This Excerpt From A Letter of J. L. Biddle, Supt. of Maintenance WESTVACO CHLORINE PRODUCTS, INC.

"We installed the first Sterling Turbine Pump in 1932 at 500' setting. This pump has been in continuous service since that date except when we pulled the well to inspect the pump and lower pump to 700' setting. On May 26, this year (1936), we again pulled this pump to inspect it, and again found it to be in perfect shape.

"Since 1932 we have installed many more of the same type of Sterling pumps . . . we are 100% sold on them!"



Such a statement by a man of authority who has no personal axe to grind should mean much to you who seek long-lived, trouble-free pump operation. Write for full details, catalogs and prices—today.

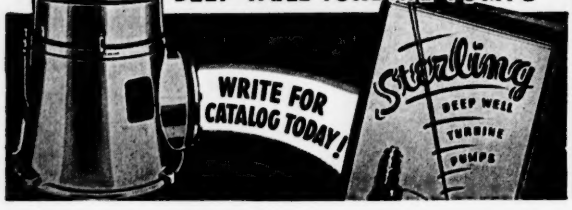
STERLING PUMP CORPORATION

Hamilton, Ohio — Stockton, Calif.

PRECISION BUILT

STERLING

DEEP WELL TURBINE PUMPS



Few Sterling Pump owners need service—but if you need it, Sterling offers the highest class of service from coast to coast.

A practical way to reduce office costs in 1941

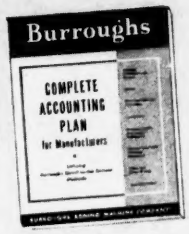
During the coming year business will be faced with many new conditions, including an increased demand for more reports and statistics.

It is therefore important to consider practical suggestions for doing office work, and getting essential information, in less time, with less effort, and at less cost.

To help you, Burroughs representatives offer their experience and technical knowledge of machines, applications and procedures for lowering office costs or meeting changing business conditions.

This timely service is available to you. Call Burroughs today—there's no obligation.

A FEW OF THE MANY BOOKLETS BURROUGHS OFFERS FOR LOWERING TODAY'S COSTS

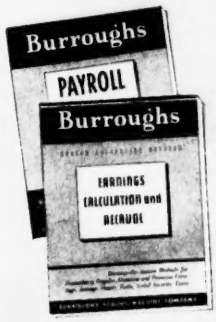


1 MANUFACTURERS' COMPLETE ACCOUNTING

Describes direct-to-the-answer methods for keeping complete records, including labor accounting, materials control and all cost records.

2 WAYS TO SAVE TIME IN AN OFFICE

Thirty basic suggestions for eliminating the unproductive operations that prevent employees from doing their best work.



3 LABOR ACCOUNTING

Booklets illustrate methods adopted by firms successfully meeting today's changing labor accounting requirements.

4 25 WAYS TO STOP PROFIT LEAKS

A booklet for retailers. Shows how to discover and stop the leaks and losses that eat into retailers' profits.

Check on the coupon the booklets you wish, or name the subject on which you want specific information.

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Please send booklets 1☐ 2☐ 3☐ 4☐

Also information on_____

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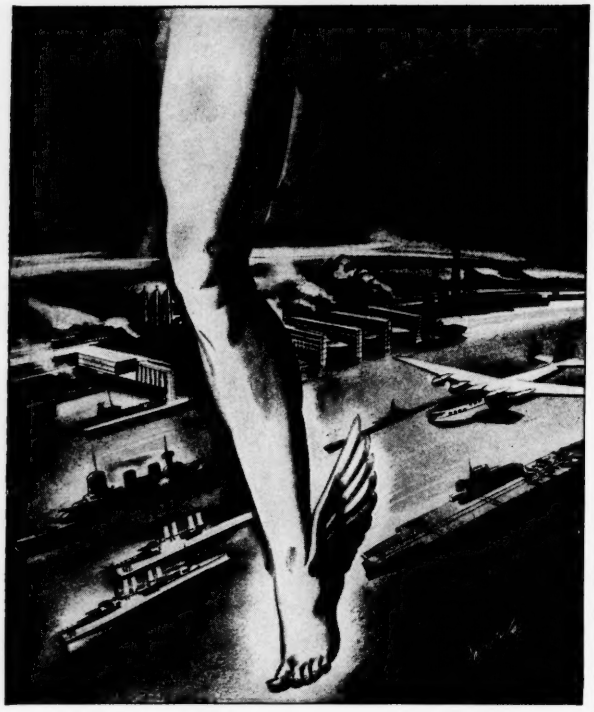
DOES THE WORK IN LESS TIME • WITH LESS EFFORT • AT LESS COST



AS PACEMAKER TO MARS

THE *Engineer* GIVES

VELOCITY TO PRODUCTION!

When Industry becomes a purveyor to preparedness, it needs the winged heels of Mercury to answer the call for speed.

But it needs sound planning first, because speed without plan invites confusion and delay.

Sound planning is anticipation, blueprinted and laid out to the scale of time—Time for construction; Time of manufacture; Time free of repairs and interruptions.

This is the sort of planning that you want in a new plant or in your present one. And it is this that we offer you through a seasoned and experienced Engineering organization equipped to plan, design, arrange for and supervise construction, make reports and investigations.

Engineers

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INDUSTRIAL PLANTS - PAPER MILLS - TEXTILE MILLS - PLANS AND DESIGNS
STEAM UTILIZATION - TOBACCO FACTORIES - KNITTING MILLS - LOCATION STUDIES
APPRAISALS - REPORTS - WATER TREATMENT - WATER SUPPLY - SURVEYS - POWER

FINANCE » » » *and* « « « *INDUSTRY*

Federal Reserve Recommendations

Recent financial news which took precedence over other items was a statement of Marriner S. Eccles, chairman of the Federal Reserve Board, of desired legislation to put the country's financial house in better order. Recommendations included withdrawal of the President's power to further devalue the dollar, and issuance of $3 billions of new currency of the so-called greenback variety authorized by the Thomas amendment.

The recommendations are backed by the Federal Reserve Board, presidents of the Federal Reserve Banks, and the Federal Reserve Advisory Committee of business men. They also include increasing the present statutory limit of excess reserves; appropriations for defense should be paid by taxes rather than by more borrowing, and the sale of government bonds to investors is proposed rather than to banks, this being a major cause of piled up reserves. Also, balance the budget "whenever the country approaches a condition of full utilization of its economic capacity," which is harder to figure out.

The suggestions that have received generally favorable comments in the press doubtless would give satisfaction to the business world, which has questioned the financial and economic course of the government. Their adoption, however, is by no means certain. The question is asked if the ideas advanced have met with the President's approval, and whether Congress is likely to adopt them unless the President does approve.

Resulting discussion in Congress should be illuminating.

Leave Insurance In Private Hands

Insurance companies of the United States have done a worthy work in providing protection to the business man, safeguarding the home, protecting families of the bereaved, as well as affording prompt facilities for loans which many times carried borrowers through periods of need.

The Chamber of Commerce of the United States refers to this while stating that insurance in all forms has been carried on under private enterprise. It also says the SEC is about to make a report on insurance practices and it is feared that there may be proposals to the Congress for federal supervision and regulation of insurance. Similar fears were aroused when life insurance companies were being investigated recently by a Congressional committee, but it was thought that the testimony gave little excuse for any governmental interference with an enterprise so close to the lives and interests of millions of policyholders.

The total amount of life insurance outstanding is now in excess of $117 billions, an all-time peak which represents more than 60 per cent of the outstanding life insurance in the world. Fire insurance companies in the course of a year protect property worth $200 billions.

A special study by the Chamber of Commerce of the United States has resulted in the announcement of an expanded program of insurance activities designed to show the importance of insurance to the conduct of business.

The Development of Iron and Steel

Steel wages in 1940 were the highest in the history of the industry according to "Steel Facts." Since May first of last

(*Continued on page* 48)

SOMETHING FOR NOTHING

To manufacturers seeking industrial sites in the South we offer an experienced and competent plant location service without cost or obligation.

—We Know The Good Plant Locations—

For many years we have made a careful study of this territory and have accumulated a great amount of information on plant sites, natural resource, and manufacturing conditions. We have rendered valuable assistance to other manufacturers and we can help you—it will cost you nothing.

The string? Increased business for us resulting from industrialization of the area. The South is America's fastest growing industrial section.

Ask us for detailed studies of suitable locations for your business in the Seaboard "Profit Zone."

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SEABOARD AIR LINE RAILWAY, NORFOLK, VIRGINIA

NATURAL GAS

A fuel whose value has been proven by years of use in a most diversified line of industrial applications.

Natural gas has created the possibility of effortless comfort by the facility, and economy with which it fits into the home.

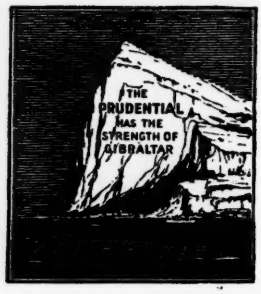
SOUTHERN NATURAL GAS COMPANY

Watts Building **Birmingham, Ala.**

Is Jones One Of Your Key Men?

You can lessen the blow his sudden demise might cause by insuring his life for the benefit of the firm.

Ask about
"Business Insurance"



The Prudential
Insurance Company of America
Home Office, NEWARK, N. J.

Finance *and* Industry

The Development of Iron and Steel

(*Continued from page* 46)

year steel workers earned an average of 85½ cents per hour, which is 30 per cent above the average paid in 1929. In a recent issue of the publication quoted, interesting facts about the history of iron and steel making in this country are given. At the present time iron and steel are made in less than half as many communities as in 1857, but the tonnage capacity is 100 times greater.

In 1856, while Pennsylvania was the leading producing state, Virginia (including West Virginia) had 95 furnaces; Tennessee, 74; Kentucky, 47, and there were other furnaces in Maryland, North and South Carolina, Georgia and Alabama.

Birmingham, the South's steel center, recently reached an all-time record of more than 2,400,000 tons of steel ingot production.

Railroad Earnings

The net operating income for 1940 of Class I railroads, it is estimated, will be $650,000,000, the largest since 1936. It is also $61,000,000 more than the year preceding, and will be equivalent to 2.49 per cent on the property investment of the roads.

Shipments, Orders, Inventories

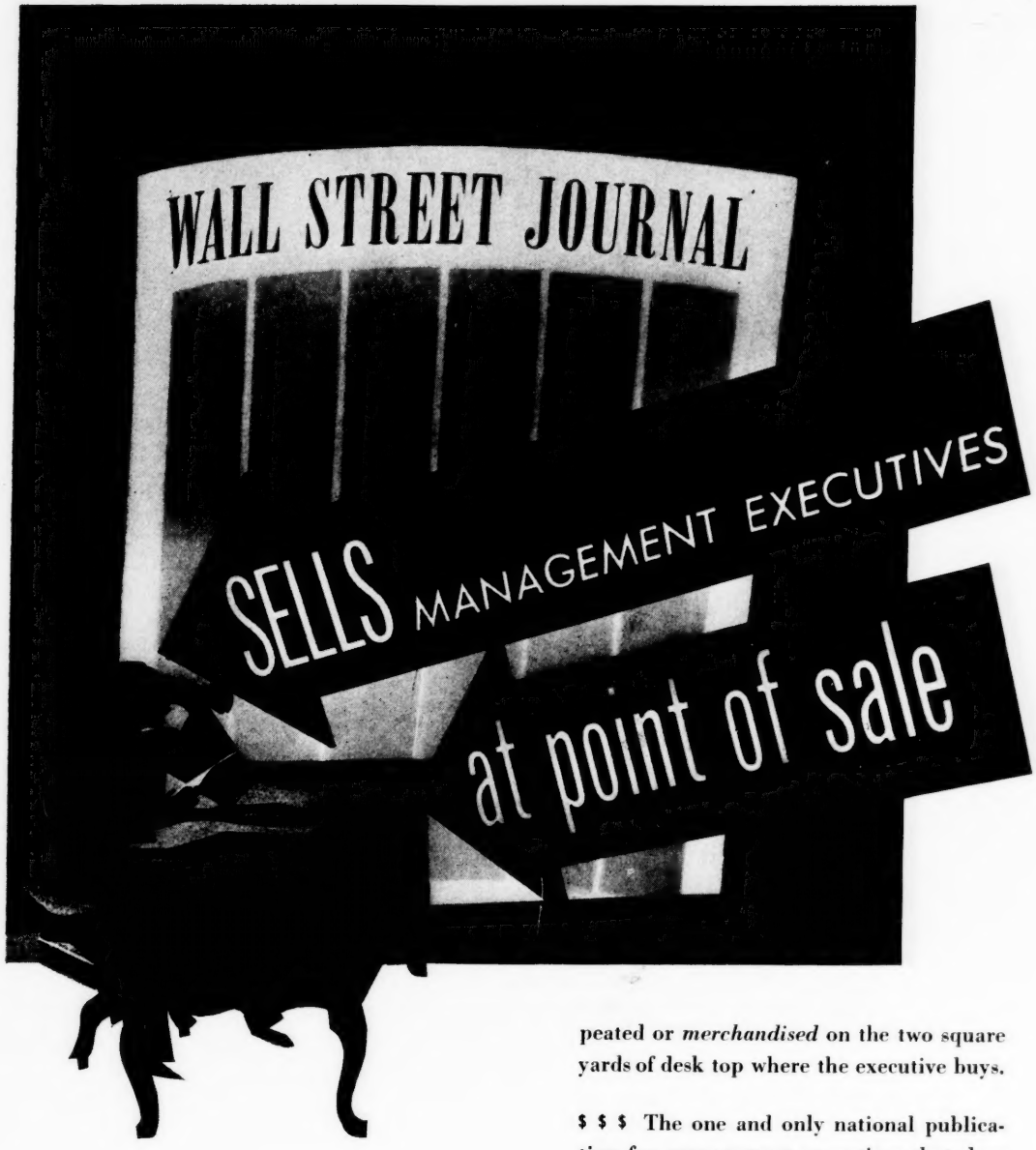
The Department of Commerce reported at the end of the year that shipments had gained three points above October, while new orders declined 13 points from the extraordinary October total. The backlog of unfilled orders, however, increased 10 per cent during the month. Manufacturers' inventories continued to expand in November to about the same extent they did in October. The dollar investment in these increased figures for the two months was approximately $400,000,000.

Stop Needless Expense

On the day the new Congress opened more than 800 bills were introduced. They deal with an infinite variety of legislation, some of it important enough to gain the floor later, and a great deal of it to be pigeon-holed in Committee archives.

The business public waits anxiously for authoritative utterances on the part of leaders in Congress and the administration that unnecessary expenditures will be cut, but so far such word has not been forthcoming. Multitudinous bureaus apparently are to continue regulating nearly every form of human activity, when it is apparent to most people that a large part of them could be done away with to the benefit of the economic life of the country.

One of the handicaps in the defense program, and it is a serious handicap, is the obligation to comply with laws that not only impede progress, but impose a mass of detail on every business concern that cause wasted time and effort. If the country was told that while large spending for defense is necessary, economy in other directions would be the watchword, that the Labor Relations Act would be amended, as well as a number of other laws, and that the government would stop competing with private business, there would be an increase in confidence in government objectives and an enthusiasm for progress on the part of the business community that would do more to set affairs in order in this country than anything else. There is no question of the fact that private industry in the United States has been under a severe handicap for a long time.



In their offices at their desks, management executives buy direct or through subordinates:

NEW BUILDINGS
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—and many other things

$ $ $ Much of the value of your advertising in executive publications that are read at home is lost, unless your message is repeated or *merchandised* on the two square yards of desk top where the executive buys.

$ $ $ The one and only national publication for management executives that does this merchandising job for you is The Wall Street Journal. 86 per cent of its subscribers read it in their offices at their desks.

$ $ $ It gives you, per advertising dollar more readers who are active management-executives of industrial corporations with assets of over $1,000,000 than any other publication—*magazine or newspaper.*

$ $ $ Step up the success of your whole *drive to sell management executives by* using—

THE WALL STREET JOURNAL

INDUSTRIAL NEWS

Carnegie-Illinois Steel Makes Moore a Vice President

Succeeding D. A. Barrett, who retired December 1, 1940, after 44 years of service with the Carnegie-Illinois Steel Corporation and predecessor companies, E. E. Moore has been elected Vice President, Industrial Relations, of the corporation. Mr. Barrett has acted in a supervisory capacity since 1901 when he became hot mill foreman at the former LaBelle works. Mr. Moore has been associated with the United States Steel corporation subsidiaries since 1919 when, following completion of his army service in the A.E.F., he secured employment as a machinist at the Gary mills of the American Sheet and Tin Plate Company.

Thorn Appointed Roebling Branch Manager for Philadelphia

Horace E. Thorn has been appointed manager of the Philadelphia branch office of John A. Roebling's Sons Company, Trenton, N. J., according to announcement by the company. Graduating from Drexel Institute in 1912, Mr. Thorn entered the Roebling organization, working in the Engineering Department as designer and draftsman. He was transferred in 1917 to the Sales Department as sales agent for Roebling wire specialties, high carbon round wire, and flat wire. In his new position, he will have charge of all sales and local stock of Roebling's complete line of wire rope, electrical wires and cables, cold rolled flat wire and specialties, and woven wire fabrics.

Simple Methods for stepping up DEFENSE PRODUCTION

With a surging demand for greater output, plants operating on defense materiel use every possible means to obtain it. It is no wonder that these plants are rapidly installing overhead handling equipment to relieve floor congestion — to gain time through process aids — or to conserve skilled manpower by eliminating handling fatigue.

Simple systems as shown here are quickly and inexpensively applied wherever a short cut is needed. American MonoRail engineers can spot these places in a short survey of your plant. They will then offer a detailed proposal which does not obligate you in any way. Why not give them a chance to help push along your defense production?

Easy unloading of die block on extension to system inside shop.
Simple spur over planer allows quick and accurate placing of die
Interlocking cranes serve entire pouring floor for careful handling of molds and metal

THE AMERICAN MONORAIL COMPANY

13120 Athens Ave. Cleveland, Ohio

Caterpillar Announces Promotions

Two important promotions in the company's organization have been announced by Caterpillar Tractor Company, Peoria, Ill. Donald A. Robison has been made a vice-president of the company with administrative direction of all selling and advertising activities, and Gail E. Spain has been made general sales manager to succeed Mr. Robison. A graduate of the University of Nevada, Mr. Robison has been closely associated with Caterpillar Tractor Company activities for many years, while Mr. Spain, a graduate of Oregon State College, with a degree in Mechanical Engineering, joined the "Caterpillar" organization in 1929 at San Leandro, Cal.

Shirley Named Freeport Vice-President

R. K. Shirley has been elected vice-president and treasurer of the Freeport Sulphur Company, New York City, according to announcement by Langbourne M. Williams, Jr., president. Mr. Shirley joined the organization in Texas in 1922, starting as chief clerk to the auditor and advancing successively to auditor, assistant general manager, assistant vice-president and comptroller, and treasurer. A native Texan, he is 41 years old and was transferred to the company's New York office in 1930.

Whiting Sales Representatives

Whiting Corporation, Harvey, Ill., has announced the appointment of Shirley, Ollcott & Nichols, 202 Mills Building, Washington, D. C., as its Washington sales representatives to look after Government work.

Uncle Sam Button

J. O. Lashar, Advertising Director of American Chain and Cable Company, Inc., New York City, has designed the Uncle Sam Button and is donating all royalties from the sale of it to the American Red Cross. The button shows the face of "Uncle Sam" and bears the inscription: "I am PROUD He is MY Uncle." Sole license for the manufacture of the button has been granted the Parisian Novelty Company, Chicago.

Spratt Named P&H Sales Manager

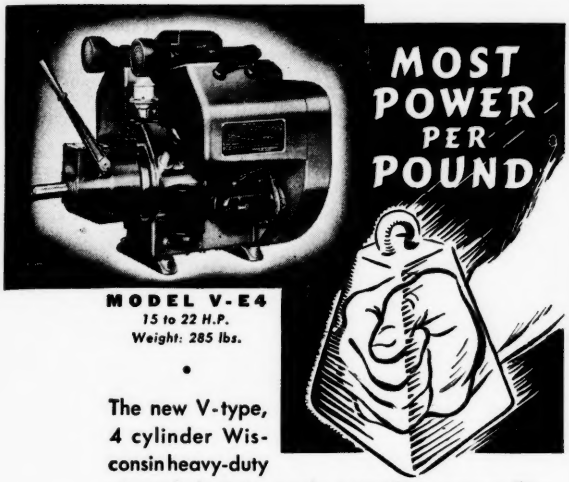
George C. Spratt has been appointed by the Harnischfeger Corporation of Milwaukee, Wis., to direct sales of the company's new Zip-Lift electric hoists for industrial materials handling, according to announcement by the company.

Wood Preserving Corporation Liquidates

Stockholders of The Wood Preserving Corporation, subsidiary of Koppers Company, Pittsburgh, Pa., have voted to liquidate the corporation in order to simplify the Koppers corporate structure and to further integrate operating and sales activities with other divisions of Koppers Company, according to G. B. Shipley, board chairman, and W. F. Munnikhuysen, president of the corporation. Business of the corporation will be conducted as an operating and sales division of Koppers Company. No changes will be made in the general management of Wood Preserving plants and operations will be continued as at present. Twenty-one plants for the treatment of wood are operated in 17 states. Southern plants are at Alexandria, La.; Charleston, S. C.; Green Spring, W. Va.; Grenada, Miss.; Hagerstown, Md.; Houston and Texarkana, Texas; Kansas City, Mo.; Montgomery, Ala., and North Little Rock, Ark. Southern offices are maintained in Baltimore, Md.; Charleston, S. C.; Houston, Tex.; Kansas City and St. Louis, Mo.; Little Rock, Ark.; Memphis, Tenn.; Montgomery, Ala., and Texarkana, Ark.

S.A.E. 4640 Steel Stocked by Ryerson

The very reliable gear steel known as S.A.E. 4640 is now carried in stock for immediate shipment by Joseph T. Ryerson & Son, Inc., Chicago, according to announcement by the company. Stocks include hot rolled annealed rounds in sizes from 1 inch to 5 inches. Because of its high fatigue resistance, toughness, and ability to attain a high degree of hardness with minimum of distortion in heat treatment, S.A.E. 4640 is said to be one of the best gear steels of the medium carbon grades. But in addition to gear use, it is recommended for arbors, racks, worms, boring bars, spindles, clutches, piston rods, bolts, studs, ratchets, pins, and for other applications where resistance to shock and great toughness are necessary at relatively high hardnesses. The machineability of both annealed and heat treated S.A.E. 4640 is claimed to be superior to other steels of this type.



MODEL V-E4
15 to 22 H.P.
Weight: 285 lbs.

•

The new V-type, 4 cylinder Wisconsin heavy-duty air-cooled engine packs a terrific power wallop per pound of engine weight . . . more so than any other *heavy duty* engine of comparable weight or cubic cylinder capacity.

▼ ▼ ▼

Make us prove this statement . . . under your own conditions. Detailed data on request. Write Dept. M-1.

MOST POWER PER POUND
HEAVY-DUTY AIR-COOLED ENGINES

by WISCONSIN MOTOR CORPORATION
Milwaukee, Wisconsin, U. S. A.

World's Largest Builders of Heavy-Duty Air-Cooled Engines

PERIODICALS WANTED

Bound or unbound volumes of SOUTHERN PLANTER from 1841 to date.

Also bound or unbound copies of MANUFACTURERS RECORD Volume 5, issues to No. 1 to 26, copies dated February 16, 1884 to August 9, 1884.

Periodical Department

Enoch Pratt Free Library, Baltimore, Md.

SURVEYING INSTRUMENTS

New and Rebuilt
TRANSITS AND LEVELS
for Engineers, Architects, Contractors
REPAIRING USED INSTRUMENTS BOUGHT

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We have helped

many businesses that have brought us their financial problems.

Correspondence invited.

BALTIMORE COMMERCIAL BANK

GWYNN CROWTHER, *President*

BALTIMORE, MARYLAND

Member Federal Reserve System
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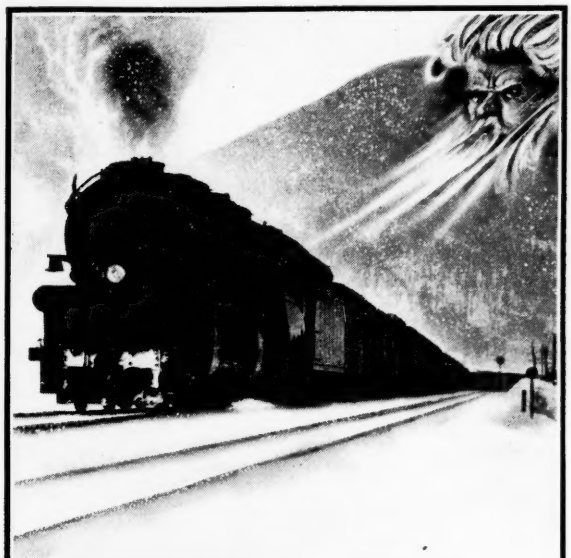


WHEN *"Old Man Winter"* BLOWS!

THERE is nothing more uncertain than the weather . . . but come what may this winter, howling winds and drifting snow, sleet, hail or sub-zero temperature, there is one thing that is certain!

Though highways may be blocked and rivers choked with ice . . . though gales may sweep the mountains and pile tremendous drifts in the valleys . . . though other forms of transportation may be paralyzed . . . it is certain that the trains will get through!

Particularly during this season of the year, thousands of shippers and receivers of freight throughout the country smile with confidence when they think of the Norfolk and Western Railway . . . they know from past experience that freight routed over this railway will move!

If you want to lick the uncertainty of the weather, call or write a Norfolk and Western representative—he will be glad to help you with fast, economical—certain, "all-weather" routings!

NORFOLK AND WESTERN *Railway*

PRECISION TRANSPORTATION

Copr. 1941 N. & W. Ry.

XUM

TRADE LITERATURE

1941 MODERN PLASTICS CATALOG—

Containing over 476 pages, the 1941 Modern Plastics Catalog from the Publicity Department of Modern Plastics Magazine, published by Breskin Publishing Corporation, 122 East 42nd Street, New York City, is declared to be the most complete and authoritative treatise on the plastics industry in the United States. There are nine main divisions: Plastics Engineering, introduced for the first time; Materials Section, presenting a series of articles on all types of plastics according to their composition; Molding and Fabricating; Machinery and Equipment; Laminates; Plastic Coatings; Plastic Properties Chart; Solvents Chart and Chart on Plasticizers, and a Directory Section. The directory section of the catalog is larger than that of any previous catalog, containing a complete list of customs molders—compression and injection—as well as a list of foreign manufacturers of plastics in Canada, South America and Mexico. The Selected Bibliography of books and magazines on plastics has been brought up to date, as has the chapter devoted to the nomenclature common to the industry. Names and addresses of companies engaged in various phases of the plastics industry are included, with a section on molders' markings. There is also a directory of trade names.

LOCKWOOD'S DIRECTORY OF THE PAPER AND ALLIED TRADES—

The 1941 edition of Lockwood's Directory marks the sixty-sixth annual edition covering the paper industry and allied trades. The directory is issued in two editions—the regular edition covering 1300 pages and the Travelers' edition covering 250 pages or more, the latter including only the pulp and paper mill section which makes it convenient for travelers to carry with them. The directory is published by the Lockwood Trade Journal Co., Inc., 15 West 47th Street, New York City, and the cost of each edition is $7.50 or $7.00 cash with order.

It is pointed out in the preface to the publication that the production of pulp and paper will, undoubtedly, reach an all-time peak this year because several great new mills have been placed in operation, while a number of paper and pulp mills which have been idle for sometime past have resumed operations. This increasing activity has been responsible for many changes both in the personnel and equipment of the mills, and these changes, as far as possible, have been noted in various sections of the new directory.

1941 CALENDARS—

Among the 1941 calendars received at the offices of the Manufacturers Record are the following: Eastern Air Lines, Incorporated, Eastern Air Lines Building, New York City; Hercules Powder Company, Incorporated, Wilmington, Del.; The C. F. Pease Company, Chicago, Ill., manufacturers of blue printing machinery, etc.; The Bull Dog Floor Clip Company, Winterset, Iowa; Rose Exterminator Company, Baltimore, Md.; The Ingalls Shipbuilding Corporation, Birmingham, Ala.; Norfolk and Western Railway, general offices at Roanoke, Va.; A. W. Harrison & Sons, Inc., Baltimore, Md., engravers, electrotypers, etc.; The Jaeger Machine Company, Columbus, Ohio, manufacturers of construction and paving equipment; American Airlines, Inc., New York Municipal Airport, Jackson Heights, N. Y.; Employers Mutual Liability Insurance Company of Wisconsin, and Employers Mutual Fire Insurance Company, Wausau, Wis.; Turner & Thomas, Baltimore, Md., Insurance Agents and Brokers; Allis-Chalmers Manufacturing Company, Milwaukee, Wis.; Pennsylvania Railroad; Baltimore Commercial Bank, Baltimore, Md.; International Harvester Company, Inc., Chicago, Ill.; Continental Machines, Inc., Minneapolis, Minn.; General Electric Company, Schenectady, N. Y.; Koppers Company, Pittsburgh, Pa.; O. F. H. Warner & Co., Inc., Baltimore, Md.; O. J. Maigne Co., New York, N. Y., printers' rollers; York Dispatch, York, Pa., newspaper; West Virginia Pulp and Paper Company, New York, N. Y.; The Cooper-Bessemer Corporation, Mount Vernon, Ohio; Kingsport Press, Inc., Kingsport, Tenn.; The North Carolina Granite Corporation, Mount Airy, N. C.; Maryland Trust Company, Baltimore, Md.

DIESEL MARINE ENGINES—

Booklet—32 pages, listing capacities and mechanical features of each of the eight sizes of "Caterpillar" Diesel Marine Engines.
Caterpillar Tractor Company, Peoria, Ill.

FLEXIBLE SHAFTS AND MACHINES—

Catalog No. 28—80 pages, illustrating and describing Flexible Shafts, Machines and Attachments covering a multitude of operations—65 types and sizes of machines, both vertical and horizontal, direct drives and variable speeds.
N. A. Strand & Company, Chicago, Ill.

TREATED POLES—

Booklet (Form G-15)—"Pressure-Creosoted Poles," 20 pages, discussing comparative costs and life of treated and untreated poles, their specification and use, and presenting tables showing characteristics and sizes of various species of pole timber, with other information.
The Wood Preserving Corporation, Pittsburgh, Pa.

WORTHINGTON LITERATURE—

Bulletin—"Worthington Centrifugal Refrigeration for Air Conditioning and Industrial Applications";
Bulletin L-611-B12B—"Worthington Single Horizontal Three-Stage Compressors, Steam and Motor Driven—Types HB-3 and HS-3";
Bulletin L-611-B11A—"Worthington Single Horizontal Two-Stage Compressors, Steam and Motor Driven—Types HB-2 and HS-2";
Bulletin H-1200-B12A—"WB-85 Pavement Breaker and WSD-85 Sheeting Driver";
Bulletin W-103-B4A—"Worthington Horizontal Duplex Side Pot Pumps for Refinery Service."
Worthington Pump and Machinery Corporation, Harrison, N. J.

MATERIAL HANDLING—

Booklet—illustrated, prepared as an informative piece for those interested in the overhead method of materials handling, featuring a variety of grabs and handling devices for many kinds of materials; while many of the grabs can be used with other systems, they are being offered to users of Cleveland Tramrail only.
The Cleveland Crane & Engineering Company, Wickliffe, Ohio.

MECHANICS' TOOLS—

Catalogue—condensed catalogue on "Yankee" Fine Mechanics' Tools, declared to represent the utmost in quality, efficiency and durability, with all bright metal parts chromium plated.
North Bros. Manufacturing Company, Philadelphia, Pa.

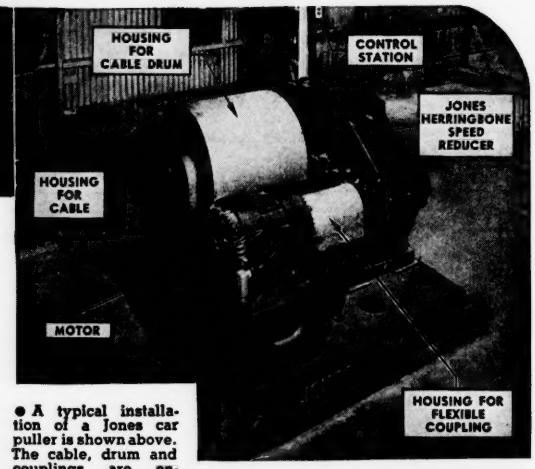
For spotting your cars-
JONES CAR PULLERS

YOU will be surprised how much time can be saved in the spotting and switching of cars by using a Jones car puller. These sturdy, compact units will speed up car handling to the point where they soon pay for themselves in the saving of time and labor.

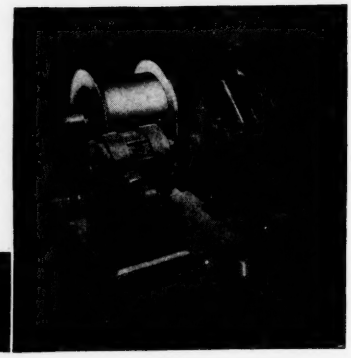
These car pullers are built by Jones as complete units with motor included if desired, or with base to take standard motor, as supplied by the purchaser. The cable drum is driven by a Jones triple reduction Herringbone speed reducer and the control station may be located at a point to give the operator a clear view of the tracks and spotting positions.

Even in plants where comparatively few cars are handled it has been found that a Jones car puller more than pays its way. Prices and complete information will enable you to judge whether such an outfit might pay out in your plant. Write for complete information.

W. A. JONES FOUNDRY & MACHINE CO.
4425 Roosevelt Road, Chicago, Illinois



• A typical installation of a Jones car puller is shown above. The cable, drum and couplings are enclosed by sheet metal housings as an extra precaution in this installation to eliminate all hazard from moving parts.



• A complete Jones car puller unit. These outfits are for use with wire rope and are manufactured in a wide range of capacities to suit the number of cars to be handled in each plant.

Jones HERRINGBONE—WORM—SPUR—GEAR SPEED REDUCERS CUT AND MOLDED TOOTH GEARS • V BELT SHEAVES ANTI-FRICTION PILLOW BLOCKS • PULLEYS FRICTION CLUTCHES • TRANSMISSION APPLIANCES

ESTABLISHED 1905

Strand
FLEXIBLE SHAFTS

THIRTY-SIXTH YEAR

REGISTERED TRADEMARK

FLEXIBLE SHAFTS AND MACHINES

— EXCLUSIVE MANUFACTURERS —

IN ALL PARTS OF UNITED STATES

SOUTH—EAST—NORTH—WEST

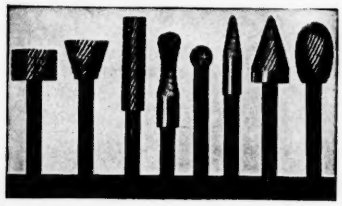
— STRAND —

HIGH QUALITY MACHINES ARE SERVING INDUSTRY

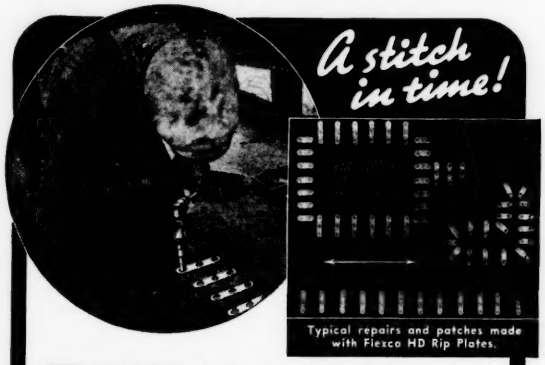
SIXTY TYPES AND SIZES
1/8 to 3 H.P.

OUR NEW 80-PAGE CATALOG NOW READY FOR DISTRIBUTION.

GROUND ROTARY CUTTERS



N. A. STRAND & COMPANY
MAIN OFFICE AND FACTORY
5001 - 5009 No. WOLCOTT AVE., CHICAGO



Typical repairs and patches made with Flexco HD Rip Plates.

THOUSANDS of men in industrial plants, mines and mills all over the country are doing just what this man is doing. They are cutting costs by repairing conveyor belts with Flexco HD Rip Plates.

WRITE TODAY FOR BULLETIN F-100 that shows how easy it is to repair rips, to strengthen soft spots and to put in patches by using Flexco HD rip plates. The bulletin also shows how to make tight butt joints in both conveyor and elevator belts with Flexco HD Belt Fasteners. These fasteners are made in six sizes. Furnished in special analysis steel for general use and in various alloys to meet special conditions.

Flexco HD Rip Plate

Flexco HD Belt Fastener

FLEXIBLE STEEL LACING CO.
4690 Lexington St., Chicago, Ill.

FLEXCO HD BELT FASTENERS
REG. U.S. PAT. OFFICE
Sold by supply houses everywhere

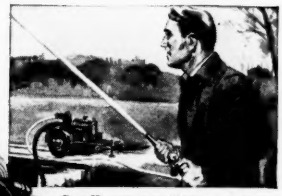
EVERY *Isolated* FACTORY OR MILL NEEDS THIS:

If you have buildings or goods situated many miles from city fire protection, it will pay you to consider this private fire apparatus. It is modestly priced: you need it if you have as little as $25,000 at stake.

Because it carries its own engine and pump it is entirely independent of power lines or water mains. It draws from any pond, stream, or artificial cistern; it delivers 150 gallons a minute at 100 lbs. pressure—enough for two fire fighting streams. One man can handle it alone if necessary, for engine and pump operate without attention after starting.

Fire insurance checks can't fill rush orders—in these times you need your *plant*, not its money value. Send for full information about the LaBour Fire Trailer—today, before something happens to make it too late.

THE LABOUR COMPANY, Inc.
1571 Sterling Ave.
Elkhart, Indiana
U.S.A.



Small communities are using the LaBour Fire Trailer for municipal protection. We'll be glad to tell you about this if you are interested.

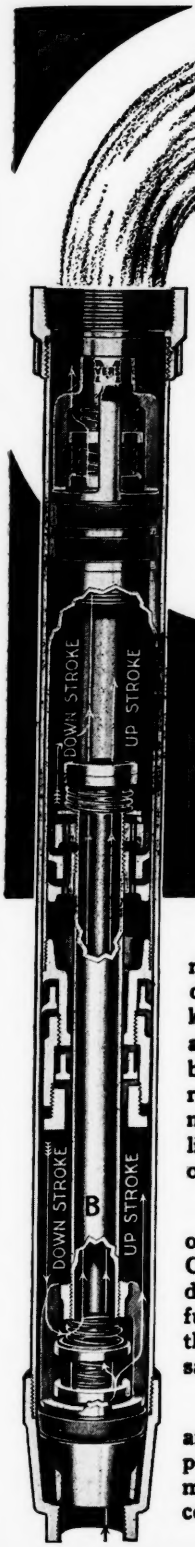
LABOUR FIRE TRAILER

NATIONAL DEFENSE PROGRAM AWARDS IN THE SOUTH

(*Continued from page 39*)

Unit	*Manufacturer*	*Item*	*Amount*
Medical Corps	Lammert Furniture Co., St. Louis	Office furniture	$5,719
Ordnance	Davis Boring Tool Division, Larkin Packer Co., St. Louis	Tools	1,373
"	Mines Equipment Co., St. Louis	Fire control equipment	10,398
"	Crawford Mfg. Co., Inc., Kansas City	Small arms material	38,558
Qtmtr. Corps	Ely & Walker Dry Goods, St. Louis	Flannel shirts, O. D.	40,970
" "	Miller Mfg. Co., Joplin	Flannel shirts, O. D.	21,265
" "	Oberman & Company, Springfield	Flannel shirts, O. D.	24,378
Air Corps	Premium Cap Co., St. Louis	Caps	54,000
Qtmtr. Corps	Rice-Stix Dry Goods Co., St. Louis	Flannel shirts	31,000
Air Corps	H. D. Mercantile Co., Kansas City	Suits	61,557
Qtmtr. Corps	International Shoe Co., St. Louis	Alaska waterproof leather boots	34,262
" "	Oberman & Company, Springfield	Light serge trousers	79,699
" "	Ely Walker Dry Goods Co., St. Louis	Light serge trousers	24,426
" "	J. A. Lamy Mfg. Co., Sedalia	Light serge trousers	17,383
Ordnance	Jackes-Evans Mfg. Co., St. Louis	Metallic belt links	783,000
Qtmtr. Corps	Industrial Aid for the Blind, St. Louis	17,000 bleached cotton pillowcases	3,655
" "	Union Cap Co., St. Louis	Blue denim working hats	48,262
" "	Premium Cap Co., St. Louis	Blue denim working hats	81,209
" "	Goodenow Textiles Co., Kansas City	Cotton drawers, shorts	69,680
" "	Ely & Walker Dry Goods Co., Salem	Cotton drawers, shorts	70,128
Ordnance	Western Cartridge Co., East Alton, Ill.	For a small arms ammunition plant at St. Louis: A. To supervise the lay-out, engineering and construction and to procure the equipment, supervise its installation and supply management services	18,600,000
"	U. S. Cartridge Co., Baltimore, Md.	B. For production of small arms ammunition	87,279,790
Supplies & Accts.	Pet Milk Co., St. Louis	Evaporated canned milk	162,173
	NORTH CAROLINA		
Qtmtr. Corps	Erwin Cotton Mills Co., Cooleemee	Khaki cotton cloth	80,844
" "	Cramerton Mills, Inc., Cramerton	Khaki cotton cloth	314,226
" "	Mebane Royall Co., Mebane	Cotton mattresses	52,389
" "	R. P. Clarke Co., Charlotte	White cotton handkerchiefs	18,567
" "	Carolina Handkerchief Co., West End	White cotton handkerchiefs	9,840
" "	P. H. Hanes Knitting Co., Winston-Salem	Cotton drawers	67,313
" "	P. H. Hanes Knitting Co., Winston-Salem	Cotton undershirts	67,313
" "	Mount Airy Knitting Co., Mount Airy	Cotton undershirts	35,112
" "	Hickory Shoe Lace Mfg. Co., Hickory	Service shoe laces	9,300
" "	Amos Hosiery Mills, High Point	Light woolen socks	25,000
" "	Runnymede Mills, Inc., Tarboro	Light woolen socks	43,133
" "	Waldensian Hosiery Mills, Valdese	Light woolen socks	30,300
" "	Erwin Cotton Mills Co., Cooleemee	Cotton cloth	55,460
Marine Corps	Rocky Mount Cord Co., Rocky Mount	Cord	2,171
Supplies & Accts.	The Leaksville Woolen Mills, Inc., Charlotte	Wool blankets	451,318
	OKLAHOMA		
Qtmtr. Corps	Phillips Petroleum Co., Bartlesville	Engine fuel	59,400
" "	Oklahoma Furniture Co., Oklahoma City	Cotton mattresses	83,779
" "	Klos Mfg. Co., Muskogee	Shelter half tents	8,560
	SOUTH CAROLINA		
Qtmtr. Corps	Eddington Fabrics Corp., Rock Hill	Cotton drill	39,475
Medical Corps	Cameron Bedding Co., Cameron	Mattresses	24,000
Ordnance	Wannamaker Chemical Co., Inc., Orangeburg	Artillery ammunition components	61,000
Qtmtr. Corps	Reeves Bros., Inc., Clevedale	34" cotton O. D. duck	102,165
" "	Southern Handkerchief Mfg. Co., Greenville	White cotton handkerchiefs	36,880
" "	Riegel Textile Corp., Ware Shoals	White cotton handkerchiefs	35,980
" "	Graniteville Co., Graniteville	Cotton cloth	142,299
" "	Graniteville Co., Graniteville	Khaki jean cotton cloth	20,500
" "	J. P. Stevens & Co., Ware Shoals	Khaki jean cotton cloth	287,375
" "	Nantex Mfg. Co., Greenwood	Cotton drawers, shorts	211,345
Marine Corps	E. W. Bailey Seed Co., Charleston	Fertilizer, etc.	217
" "	Southern Weaving Co., Greenville	Khaki cotton tape	2,325
Supplies & Accts.	Southern Weaving Co., Greenville	Linen webbing	42,003
Yards & Docks	C. M. Guest & Sons, Anderson	For a Naval ammunition depot at Charleston—est. cost	1,000,000
	TENNESSEE		
Qtmtr. Corps	Southern Athletic Co., Knoxville	Barrack bags	137,163
" "	National Rose Spring & Mattress Co., Memphis	Cotton mattresses	20,149
" "	Jamison-Anchor Bedding Co., Nashville	Cotton mattresses	20,248
" "	Slumber Products Corp., Memphis	Cotton mattresses	20,500
" "	Standard Knitting Mills, Inc., Knoxville	Woolen undershirts	50,652
" "	Appalachian Mills Co., Knoxville	Mixed cotton-wool drawers	115,200
Supplies & Accts.	Signal Mountain Portland Cement Co., Chattanooga	Portland cement	21,700
Qtmtr. Corps	Southern Mfg. Co., Nashville	Flannel shirts	15,000
" "	Appalachian Mills Co., Knoxville	Cotton drawers	39,360
" "	Appalachian Mills Co., Knoxville	Cotton undershirts	39,360
" "	Goodall Company, Knoxville	Woolen service coats	187,500
" "	O'Bryan Bros., Franklin	Light serge trousers	40,200
" "	Goodall Company, Knoxville	Light serge trousers	56,250

(*Continued on page 56*)



A GUSHER of SALES and Satisfaction with MYERS DOUBLE ACTING CYLINDERS

Today Myers brings you the most modern, the most dependable double acting cylinders on the market. There is nothing experimental about them. Designed by experts, built to precision standards, their reputation for dependable and economical service is firmly established in pump circles the country over.

Whether conditions are regular or otherwise, Myers Double Acting Cylinders satisfactorily solve most deep well pumping problems. They furnish the plus volume of water that lowers pumping costs and satisfies the most critical of users.

If you require more water from any source at lower cost than is possible to secure by ordinary methods write us for circular and complete information.

THE F.E.MYERS & BRO. CO.
ASHLAND, OHIO
PUMPS-WATER SYSTEMS-HAY TOOLS-DOOR HANGERS

PERFORATED METAL
of every sort
for Screening, Grading, Ventilating or any industrial purpose. Also Grilles of many beautiful designs.
5631 Fillmore St., Chicago, Ill. New York Office: 114 Liberty St.
The Harrington & King PERFORATING Co.

HENDRICK
PERFORATED METALS
Screens and grilles
in all commercially rolled metals,
all standard and special designs.
Write for literature
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NATIONAL DEFENSE PROGRAM AWARDS IN THE SOUTH

(*Continued from page* 54)

Unit	*Manufacturer*	*Item*	*Amount*
Qtmtr. Corps	Kingsboro Silk Mills, Daisy	Cotton mosquito netting	$14,391
Supplies & Accts.	Kingsboro Silk Mills, Daisy	Cotton mosquito netting	45,876
" "	The Springfield Woolen Mills Co., Springfield	Wool blankets	186,468
	TEXAS		
Qtmtr. Corps	National Pants Corp., Dallas	Serge trousers	18,209
" "	Haggar Company, Dallas	Serge trousers	19,402
" "	Crawford-Austin Mfg. Co., Waco	Cotton mattresses	740,644
" "	Taylor Bedding Mfg. Co., Taylor	Cotton mattresses	742,270
" "	Padgitt Bros. Co., Dallas	Trunk lockers	8,400
" "	Texas Tanning & Mfg. Co., Yoakum	Military saddles	50,750
Supplies & Accts.	Seabrook Yacht Corp., Houston	Aircraft rescue boats	126,804
" "	Maritime Oil Co., Houston	Bunker fuel oil	99,500
" "	Humble Oil & Refining Co., Houston	Bunker fuel oil	36,723
Air Corps	Humble Oil & Refining Co., Houston	Fuel	176,365
Qtmtr. Corps	H. W. Zweig Mfg. Co., Dallas	Light serge trousers	32,459
Ordnance	McEvoy Company, Houston	Small arms material	810,360
Qtmtr. Corps	G. & J. Mfg. Co., Dallas	Cabinets, complete with cradles for field ranges	299,750
" "	San Antonio Assn. for the Blind, San Antonio	64,000 bleached cotton pillowcases	13,760
" "	Dallas Assn. for the Blind, Dallas	18,000 bleached cotton pillowcases	3,870
" "	Ft. Worth Tarrant Co. Assn. for the Blind, Ft. Worth	7,000 bleached cotton pillowcases	1,505
Supplies & Accts.	Crawford-Austin Mfg. Co., Waco	Hammocks	55,800
" "	Cameron Mfg. Co., Dallas	Typewriter ribbons	12,630
	VIRGINIA		
Qtmtr. Corps	Stuart Keith Corp., Petersburg	Serge trousers	19,402
" "	Metro Pants Co., Harrisonburg	Light serge trousers	19,490
Chemical Warfare	Miller Mfg. Co., Richmond	Packing boxes	2,207
Qtmtr. Corps	A. Morganstern & Co., Fredericksburg	Light serge trousers	15,260
" "	Marshall Field & Co., Fieldale	Cotton huck towels	9,650
" "	C. B. Cones & Son Mfg. Co., Lynchburg	Denim working suits	20,500
Ordnance	The Tredegar Co., Tredegar Iron Works, Richmond	Artillery ammunition	45,652
"	The Tredegar Co., Tredegar Iron Works, Richmond	Artillery ammunition components	7,079
Supplies & Accts.	National Fruit Product Co., Inc., Winchester	Vinegar	11,200
" "	The Henry Walke Co., Norfolk	Tinners shears	5,958
" "	Tidewater Supply Co., Inc., Norfolk	Horizontal boring, drilling and milling machines	139,208
Qtmtr. Corps	Lafayette Pants Co., Fredericksburg	Light serge trousers	12,238
Chemical Warfare	Virginia Rubatex Corp., Bedford	Outlet valves	36,833
Qtmtr. Corps	Lynchburg Hosiery Mills, Lynchburg	Light woolen socks	61,193
" "	N. & W. Overall Co., Lynchburg	One-piece working suits	5,088
" "	Williams Co., Norfolk	Plumbing and heating systems: gas fitting and water heaters for temporary buildings at MacDill Field, Florida	156,155
" "	Harwood Mfg. Corp., Marion	Cotton drawers, shorts	34,387
Supplies & Accts.	M. T. Blassingham & Co., Inc., Norfolk	Lumber	18,449
" "	Smith-Courtney Co., Richmond	Carbon steel twist drills	15,570
Yards & Docks	Westinghouse Electric & Mfg. Co., Washington, D. C.	For turbo-alternator at Norfolk Navy Yard, Portsmouth	177,300
" "	C. H. Wheeler Mfg. Co., Philadelphia	For condenser and auxiliaries at Norfolk Navy Yard, Portsmouth	23,750
	WEST VIRGINIA		
Qtmtr. Corps	Huntington Tent & Awning Co., Huntington	Shelter-half tents	16,900
" "	Washington Mfg. Co., Huntington	Serge trousers	18,432
" "	E. I. duPont de Nemours Co., Wilmington, Delaware	For the design, equipment and construction of an ammonia plant located near Morgantown	15,000,000
Supplies & Accts.	J. L. Stifel & Sons, Inc., Wheeling	Cotton drill	81,060
Chemical Warfare	Hazel Atlas Glass Co., Wheeling	Grommet eye rings	136,483
Qtmtr. Corps	Warwick China Co., Wheeling	Chinaware	172,176
" "	J. L. Stifel & Sons, Wheeling	Cotton cloth	498,720
" "	J. L. Stifel & Sons, Wheeling	Khaki jean cotton cloth	99,750

Shipbuilding Industry Faces Record Program

(*Continued from page* 27)

Gulf Coast

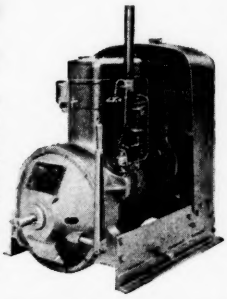
Ingalls Shipbuilding Co.	11	Cargo	99,100
	3	Pass-Cargo	27,000
Pennsylvania Shipyards, Inc.	2	Cargo	12,800
Alabama Dry Dock & Shipbuilding Co.	2	Tankers	13,000
Tampa Shipbuilding Co.	6	Cargo	44,800
Total:	24		196,700
Atlantic Coast above Mason & Dixon Line	86		737,880
West Coast	35		259,800
Grand Total:	185		1,530,640

* Details concerning construction of combatant vessels are not available.

Wagner Noflamol Transformer

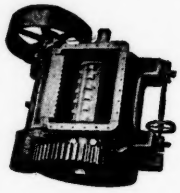
The Wagner Electric Corporation, St. Louis, Mo., announces a new type transformer known as the Wagner Noflamol Transformer. Noflamol is a non-inflammable synthetic liquid developed as an improvement over regular transformer oil. Because of the non-inflammable characteristics of Noflamol, these transformers may be installed indoors without the use of fireproof vaults. In addition to the saving on installation expense, other advantages are cited by the manufacturer.

STOVER Two Cylinder Lanova DIESEL ENGINES Are Now Ready



Smoother running. More power per cubic displacement and per pound, with proportionate lower cost. Available in 4 sizes and a variety of mounting bases. 7½ and 10 H.P. models are single cylinder. 15 and 20 H.P. are twin cylinder. Illustration shows conventional stationary type. Twin cylinder models have No. 1 Bell housing. Write Dept. D98A for Bulletin No. 51 with complete information.

STOVER MFG. & ENGINE CO., Freeport, Ill.



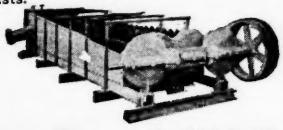
McLANAHAN EQUIPMENT

CRUSHERS

Single and double roll and jaw crushers, hammer mills, super dry pans—steel log washers and scrubbers, sand drags, revolving and vibrating screens, elevators, conveyors, dryers, jigs, hoists.

SCREENS

Complete portable, semi-portable and stationary crushing, screening and washing plants for different capacities of any materials.



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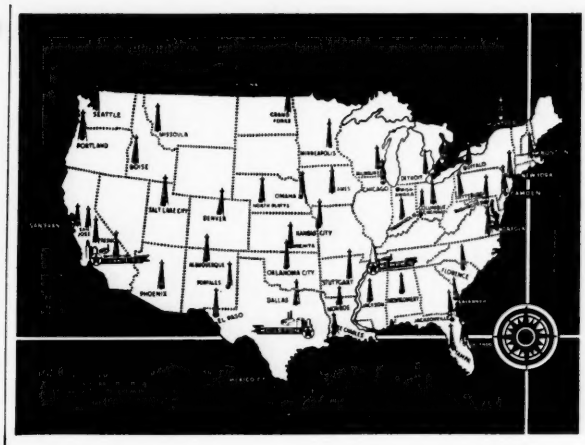
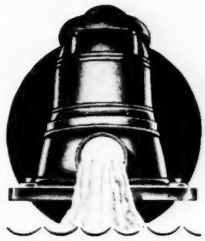
SCREWS

CONSULT US FIRST OR SUBMIT BLUE PRINTS

SAMUEL J. SHIMER & SONS MILTON PA.



First IN NATION-WIDE SERVICE



Layne service extends to the four quarters of the globe, but here in the United States it has reached its greatest efficiency. Dotted on the map from coast to coast and from border to border are Layne men and equipment ready to solve your water supply needs.

Expansion is the order of the day. Production must not lag. Never has the need for an adequate supply of water been more vital. Old wells may be reconditioned to step up their output. It might be necessary and more economical to install a completely new well water system. In either case, Layne engineers are ready to cooperate. Their experience is valuable. They will study your needs and make dependable recommendations. They will tell you facts about Layne Wells and Pumps—facts that are proven in world-wide service.

Write if you want a Layne representative to call. A complete file of catalogs, bulletins and folders may be had without obligation. Address

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LAYNE-NEW YORK CO. . NEW YORK CITY, AND PITTSBURGH . . . . . PA.
LAYNE-NORTHWEST CO. MILWAUKEE, WIS.
LAYNE-OHIO CO. . . . COLUMBUS, OHIO
LAYNE-TEXAS CO. . . . HOUSTON AND DALLAS . . . . . TEXAS.
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PUMPS & WELL WATER SYSTEMS

For Municipalities, Industries, Railroads, Mines and Irrigation

XUM

Emergency Demand For Southern Minerals

(*Continued from page 25*)

Price increases are playing an important part in the matter of making mining ventures profitable. The following table shows the increases which have taken place in strategic and critical minerals from May 11, 1939, to September 12, 1940.

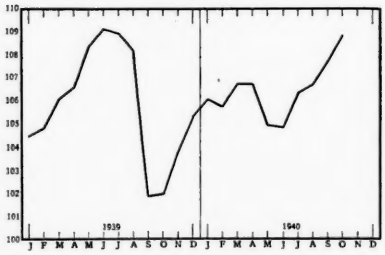
TABLE 4. Price changes in strategic and critical minerals
(*E. & M. J. prices used*)

Mineral	Price 5-11-39	Price 9-12-40	Change	Per cent change
STRATEGIC				
Antimony, per unit contained				
50-55%	1.30[a]	1.20	.10—	7.7—
58-60%	1.45[a]	1.35	.10—	6.9—
60-65%	1.55[a]	1.65	.10+	6.4+
Chromium, per lb.				
98% grade, spot	.85[b]	.89	.04+	4.7+
Manganese (ferrograde), per unit				
46-48% Brazilian	.27	.50	.23+	85.2+
Mercury, per 76-lb. flask	86.00	177.00	91.00+	105.8+
Mica, per lb., f. o. b. N. Car.				
Punch	.04[a]	.115[a]	.175+	187.5+
2 by 2 in.	.40[a]	.70[a]	.30+	75.0+
3 by 4 in.	1.20[a]	1.625[a]	.425+	35.4+
8 by 10 in.	4.25[a]	8.375[a]	4.125+	97.1+
Nickel, per lb.				
Electrolytic cathode	.35	.35	—	—
Shot and pig made from remelted electro	.36	.36	—	—
Quartz crystals for fusing, sh. tons				
All sizes	100.0[b]	125.00[a]	25.00+	20.00+
Tin, Chinese, 99% spot	.4717[c]	.491[d]	.01925+	4.1+
Tungsten ore, per unit WO_3				
Domestic sheelite, known good analyses, carload lots	17.00[a]	22.50[a]	5.50+	32.4+

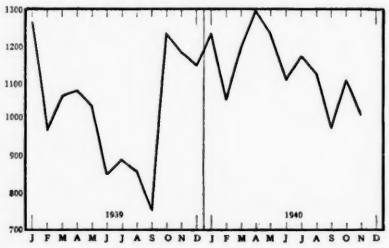
(*Continued on page 60*)

Industrial Production Trends

(*Continued from page 37*)



U. S. TREASURY BONDS
(Average price per $100 bond)



COMMERCIAL FAILURES
(Total number)

(*Continued on page 60*)

EPPINGER AND RUSSELL CO.
Wood Preservers Since 1878
CREOSOTE • Z.M.A.
Pressure Process
80 EIGHTH AVE., NEW YORK, N. Y.
POLES • CROSS ARMS • PILING • TIES
POSTS, BRIDGE AND DOCK TIMBERS
Treating Plants—JACKSONVILLE, FLA. • LONG ISLAND CITY, N. Y.

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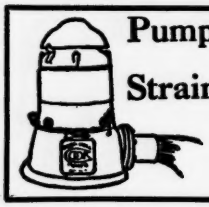
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Strainers—and other well supplies
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WHITCOMB HYDRAULIC DRIVE

Events abroad and the consequent demand for national armament has resulted in peak capacity for the majority of America's industries. There is an increasing demand for a locomotive available for service 24 hours a day—operate with the greatest economy—and require the least in maintenance attention.

This 20-ton Diesel Hydraulic is designed to give you these important advantages. The shock proof Hydraulic Torque Converter transmission furnishes a smooth, continuous flow of power to the drivers providing the flexibility and smoothness of steam—yet all the advantages of internal combustion operation. No gear shifting for speed changes—no stalling of the engine—no clutch maintenance problems. Torsional vibrations or shock loads are absorbed by the fluid drive—reducing wear on engine and mechanical parts of the locomotive.

DIESEL — GASOLINE — ELECTRIC

BLW THE BALDWIN GROUP

THE WHITCOMB LOCOMOTIVE CO.

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Subsidiary of THE BALDWIN LOCOMOTIVE WORKS

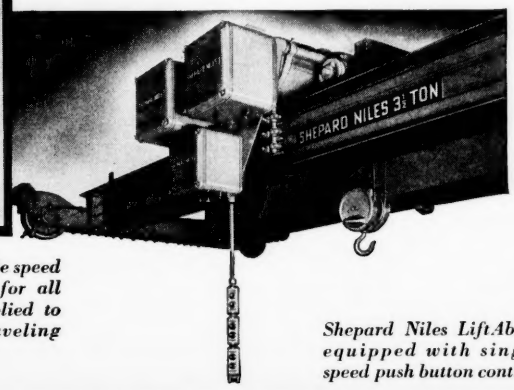
PUSH BUTTON-CONTROL

MULTIPLE OR SINGLE SPEED FOR ELECTRIC CRANES AND HOISTS!

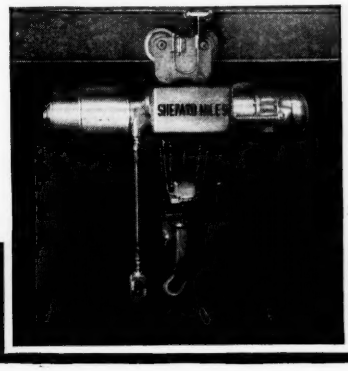
●Shepard Niles multiple speed push button control provides 5 selective speeds by one push button for each travel motion. Each button as it is pressed inward makes five electrical contacts, corresponding to five independent speeds in each direction of travel.

Push button master switch cases are of aluminum alloy and made slender enough to be grasped easily with the hand. An assembly of two or three master switches in tandem can be furnished for the control of 2-motor and 3-motor cranes and hoists. An emergency stop switch is provided at the lower end of the assembly.

WRITE FOR BULLETIN No. 129



Shepard Niles multiple speed push button control for all 6 travel motions applied to 3-motor electric traveling crane.



Shepard Niles Lift About equipped with single speed push button control.

A COMPLETE LINE OF CRANES & HOISTS

SHEPARD NILES CRANE & HOIST CORP.

362 SCHUYLER AVENUE . . . MONTOUR FALLS, N. Y.

Emergency Demand For Southern Minerals

(*Continued from page* 58)

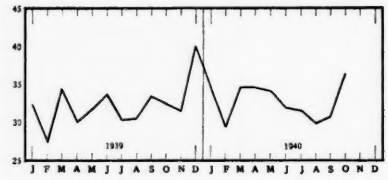
CRITICAL				
Aluminum, per lb., 99% plus	.20	.18	.02—	10.0—
Asbestos, per ton, f. o. b. Vermont				
Shingle stock	57.00	57.00	—	—
Paper stock	40.00	40.00	—	—
Cement stock	25.00	25.00	—	—
Shorts and floats	15.00[a]	15.50[a]	.50÷	3.3÷
Iodine, per lb.	2.67	3.19	.52÷	19.5÷
Graphite, per lb., f. o. b. N. Y.				
Ceylon lump	.07[a]	.09[a]	.02÷	28.6÷
Carbon lump	.061[a]	.075[a]	.014÷	22.6÷
Chip	.054[a]	.0625[a]	.0085÷	15.7÷
Dust	.035[a]	.0375[a]	.0025÷	7.1÷
Madagascar flake	.065[a]	.09[a]	.025÷	38.5÷
Platinum, per oz.				
Official price of leading interest	35.00	36.00	1.00÷	2.9÷
Vanadium, per lb., V_2O_5 contained, f. o. b. shipping point	.275	.275	—	—

The Reconstruction Finance Corporation's policy of making loans for mining, in addition to "development loans" of $20,000, which may be extended to $40,000, will undoubtedly have some bearing on the development of new mineral deposits. Government contracts for mineral supplies under the provisions of Public 117 (Stockpiling Act) are also beginning to make themselves felt.

aAverage.
bPrice quotation April 27, 1939.
cPrice quotation May 10, 1939.
dPrice quotation September 11, 1940.

Industrial Production Trends

(*Continued from page* 58)



BANK DEBITS
(Millions of dollars)

Southern Construction Reaches New High in 1940

(*Continued from page* 44)

Company covered doubling capacity of its Cabin Creek plant, near Charleston, West Virginia, cost $3,000,000, and Florida Power & Light Company, St. Petersburg, proceeded with initial work on a $3,000,000 expansion.

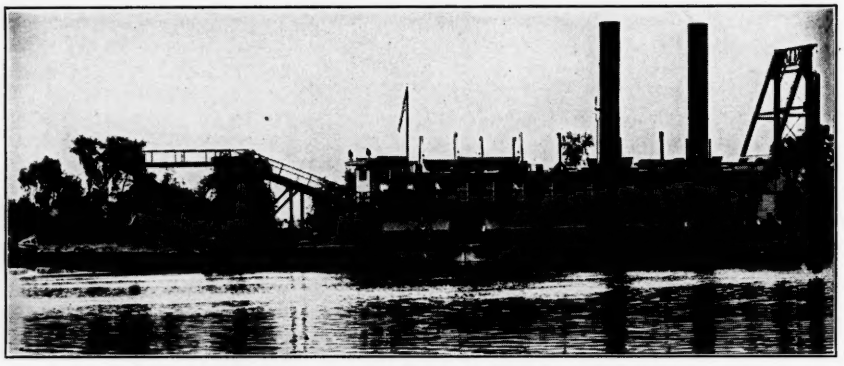
In mountainous western North Carolina Ecusta Paper Corporation let contracts for a $2,000,000 extension of the South's only cigarette paper plant. Magnolia Petroleum's $2,000,000 modernization at Fort Worth, Texas, crystallized into contracts, as did a similar project at Houston for W. R. Davis. During the same month American Manganese Corporation was reported to be planning a $1,500,000 expenditure for developing manganese in Virginia and a 20,000-ton tin smelting plant was being considered for the New Orleans area.

October's industrial expansion in the South continued at the breakneck speed of the month before. Amid the atmosphere of military and naval construction, such plants as the toluol plant to be erected at Houston under a $11,857,000 contract between the War Department and Humble Oil & Refining Company were announced. Weldon Springs, Missouri, was selected as the site for a $15,000,000 TNT plant. Additional facilities at the Radford project of Hercules Powder Company were pro-

(*Continued on page* 62)

DREDGING

FILLING, LAND RECLAMATION, CANALS, PORT WORKS
RIVER AND HARBOR IMPROVEMENTS—DEEP WATERWAYS AND SHIP CHANNELS



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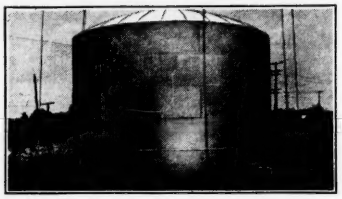
Correspondence invited from corporate and private interests everywhere.

Contractors to the Federal Government

ATLANTIC GULF AND PACIFIC CO.
NEW YORK: 15 Park Row **HOUSTON, TEXAS: Scanlan Building**

SOUTHLAND PRODUCTS
—WELDED OR RIVETED—



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WELDED OR RIVETED CONSTRUCTION

This applies to field as well as shop built equipment.

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PILING, POLES, LUMBER, TIES
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Plants at: New Orleans; Winnfield, La.; Louisville, Miss. Savannah, Ga.; Jackson, Tenn., and Norfolk, Va.

NEW Sewer and Culvert Construction

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Elevated Tanks	**Bins**
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Butane—Propane Tanks	
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General Steel Plate Construction designed for your requirements.

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R. D. COLE MANUFACTURING CO.
ESTABLISHED 1854
NEWNAN GEORGIA

Southern Construction Reaches New High in 1940

(*Continued from page* 60)

posed, and Aluminum Company of America placed its expenditure at $150,000,000 for expansion throughout the country, including the North Carolina hydro plants, new Tennessee fabricating facilities.

Intercontinent Aircraft Corporation proposed a Miami, Florida plant. Glenn L. Martin made awards and Gulf Shipbuilding Corporation started its $2,500,000 rehabilitation project. Two new paper mills appeared on the horizon, as preliminary surveys were announced for the Allied plant in Georgia, contract was awarded for the St. Marys Paper Corporation plant in the same state and Bagdad Lumber Company appeared to be interested in a similar establishment.

Through November and December the furious rush to enlarge Southern industrial operations as construction contract totals raced first through a record eleventh month high and then to an all-time peak for any year. The announcement was made during this period that a $20,000,000 program for the Navy armor plate plant being operated by Carnegie-Illinois Steel Corporation at South Charleston, West Virginia, had been increased to $50,000,000. Bids were opened for a $4,225,000 tail canal at the Santee-Cooper hydroelectric project in South Carolina.

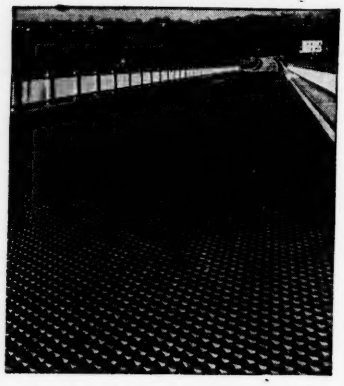
The T. V. A. was authorized to proceed with its $6,500,000 expenditure for modernizing the Muscle Shoals nitrate plant with a phosphatic plant proposed in that connection at Godwin, Tennessee. An award was made for the $5,000,000 Intercontinent Aircraft plant at Miami, Florida. Reynolds Metals Company, Inc., which previously had negotiated the Alabama aluminum plant loan, received a contract to erect a $1,000,000 Navy shell fuse plant at Macon, Georgia.

Kentucky Utilities Company joined the already long parade of power company expansions, with the announcement of a $3,000,000 steam-electric generating plant on the Kentucky River, near Tyrone, Kentucky. Jefferson Island Salt Company, Jefferson Island, Louisiana, prepared to rebuild its burned plant, as the contract was announced for the Weldon Springs plant to be operated by Atlas Powder Company. Initial work started on the $11,000,000 nylon plant at Martinsville, Virginia, for E. I. duPont de Nemours & Company.

The Navy Department had plans under way for a $2,500,000 town to be built at Pascagoula, Mississippi, in connection with shipbuilding activities there. Woodward Iron Company, Woodward, Alabama, was reported to be planning a new ore mine to cost $2,000,000. Louisville, Kentucky, was selected for a $4,500,000 ordnance plant and Lake City, Missouri, was picked by the War Department for a $12,000,000 ammunition plant. Virginia Public Service Company, Alexandria,

(*Concluded on page* 65)

NOT A PENNY for MAINTENANCE



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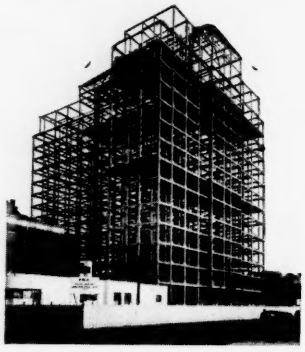

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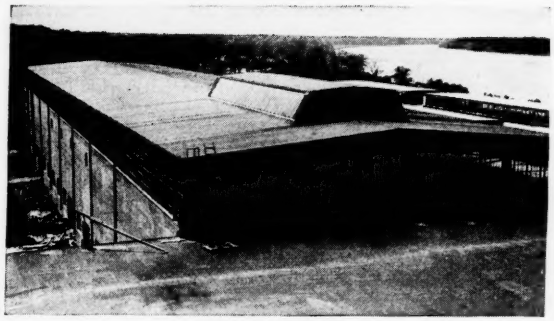

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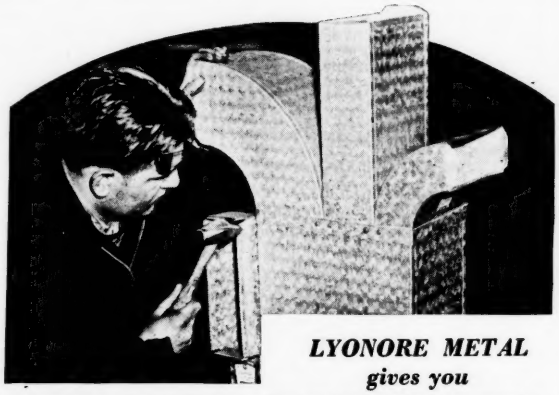

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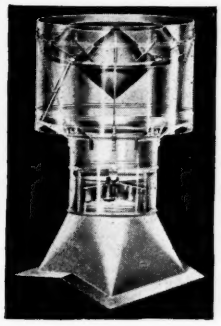

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SEND FOR CATALOGS
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Burt Engineers are glad to help on plans

XUM

For South Carolina's Progress

(*Continued from page* 34)

ing given: (1) Efforts to bring about the establishment of a State Traffic and Rate Bureau; (2) A study of Proposed Wage and Hour Bills; (3) Such a modification of the Punitive Damage practice as may remove one of the chief barriers to new investment in the State; (4) A study of the floor tax on merchants for the purpose of proposing some expedient to lighten the burden of the forty-two per cent basis of value on inventory.

"Other important questions now being, and to be, studied include:

"A study of the fiscal system of South Carolina;

"Biennial Sessions of the General Assembly;

"Taxation and expenditures;

"Principles of business conduct;

"Community free trade within the states as affected by licenses;

"The workmen's compensation act;

"The Attachment Law;

"Federal legislation and activities.

"As a means of creating an atmosphere favorable to business, radio broadcasts are given from Columbia, Charleston, Greenville, Spartanburg, Anderson, and Augusta (Ga.). In addition to the broadcasts, the weekly Spectator letters deal with business topics, government and taxes, and are sent to all daily and most weekly papers of the State, many of which publish them regularly."

The outlook for South Carolina is encouraging. The much discussed "intangibles tax," a tax on interest and dividend incomes, was repealed at the 1940 session of the legislature. This will open the way for new citizens and the return of some who were driven out when this tax was enacted in 1933. At the recent general election the people of the state again voted in favor of biennial sessions of the general assembly and it is expected that this matter will be ratified at the 1941 session of the legislature which will convene in January.

During the past two years the legislature passed no laws hampering business nor were any new taxes enacted.

While the state is facing a deficit at this time it is due to an old plan of "ear marked" appropriations. Studies are now under way in the state looking to correction of this condition.

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Chemical Stoneware:

ALL TYPES CHEMICAL BRICK AND SHAPES.

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DRAVO CORPORATION, Contracting Division
Pittsburgh, Pa.

Southern Construction Reaches New High in 1940

(Concluded from page 62)

which had completed its new Alexandria plant, announced plans for a $2,000,000 addition to it.

Both of the South's big steel organizations—U. S. Steel and Bethlehem—embarked on great expansion programs. Tennessee Coal, Iron & Railroad Company, U. S. Steel subsidiary in Alabama, ll as a result obtain a 20 percent in- ease in ingot capacity and a correspond- ing increase in finishing facilities. Bethlehem Steel, in a way, duplicated an announcement back at the time of the world war and made public its plans for spending $18,000,000 to increase its coke and pig iron production, with a big percentage of the work to be undertaken at Baltimore. American Rolling Mill Company, midwest steel concern, started a $1,000,000 modernization at Ashland, Kentucky.

As the end of the year rolled around, it became known that a $30,000,000 smokeless powder plant would be built in Alabama. A $16,000,000 ammunition loading plant had already been announced for Milan, Tennessee, by the War Department. Humble Oil & Refining Company planned a $2,500,000 recycling plant at Katy, Texas. Triton Chemical Company, Inc., acquired a site at Glen Wilton, West Virginia, for an ammunition plant, following Duke Power Company's decision to erect a $3,000,000 addition to the expanding Buck plant at Spencer, North Carolina, and an $18,600,000 project at St. Louis, Missouri, to be erected by Western Cartridge Company, as well as big aircraft assembly plants to be established at Kansas City, Mo., and at Tulsa, Okla., and Fort Worth, Texas. Both will cost from $7,500,000 to $10,000,000 and Newport News Shipbuilding & Drydock Company had under way two shipways, with a program estimated in the neighborhood of $14,000,000 or more, as the Maritime Commission prepared to establish additional shipyards to construct 200 new vessels.

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